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Worldwide Report

ENVIRONMENTAL QUALITY

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25 October 1982

WORLDWIDE REPORT

ENVIRONMENTAL QUALITY

No. 373

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GOVERNMENT ADOPTS RELIEF MEASURES AS DROUGHT REACHES EPIC LEVEL

Government Action

Melbourne THE AGE in English 1 Sep 82 p 1

[Article by Simon Balderstone]

[Text]

CANBERRA. — The Federal Government yesterday announced extensive drought relief measures, as the Prime Minister, Mr Fraser, warned that the drought might soon be one of the worst rural disasters in Australian history.

The Government is to subsidise interest payments on debts of drought-affected farmers for rates of interest exceeding 12 per cent, provided the farmer has no readily available liquid assets.

Federal Cabinet also decided yesterday to provide a 50 per cent subsidy on purchases of fodder for livestock. The subsidy will apply mainly to wheat, and will be based on a rate of 40 cents a week for sheep and \$4 for cattle. The measures will cost at least \$100 million unless the drought breaks soon.

The Federal Treasurer, Mr Howard, said in London yesterday that the long dry spell could lift the current account deficit for 1982-83 beyond its projected \$9000 million.

At a Commonwealth Finance Ministers meeting, he said that without immediate rain the drought was going to have a severe effect on the national wheat crop, worth \$1550 million in export earnings last year. A higher current account deficit would keep pressure on interest rates, as more capital inflow would be needed to meet the shortfall on the current account.

The Minister for Primary Indus-

try, Mr Nixon, will meet trading banks today to discuss ways to provide adequate finance to farmers and rural businesses.

The Prime Minister said yesterday that "certain things" had to be said to the banks, which will be expected to keep farmers on the lowest possible rates of interest to minimise the new interest rate subsidy.

Mr Nixon is to ask the State Agriculture Ministers at a special drought meeting on Monday to agree to several changes to existing care measures operating under the natural disaster relief arrangements.

The Commonwealth hopes the States will accept the cost of having local governments sink bores in central locations, and of manning them. The States will also be asked to raise the limits on carry-on loans to \$40,000, or doubled, whichever is the greater. Mr Fraser said last night that in Victoria the limit was \$15,000, which was "not going to be all that much assistance to farmers in great and serious difficulty".

The Commonwealth will require that the money that it makes available to the States for drought loans be lent by the States at no more than 4 per cent. It will suggest to States that they introduce carry-on loans for small businesses in drought-declared areas under the same conditions that now apply in Queensland (as part of care measures).

Water cartage subsidies should be set at 100 per cent by the States, with the freight subsidy on the transport of fodder and livestock to be set at 75 per cent.

Government officials last night could give no figure on the cost to the Commonwealth of the interest rate subsidy and the fodder subsidy, although the Prime Minister said the interest rate measure could cost between \$40 and \$60 million in a full year.

The fodder subsidy is designed to preserve the breeding stock of sheep and cattle. Mr Fraser said yesterday that the Commonwealth was not prepared to alter the base limits which the States must provide in drought relief finance before the Federal Government backs them up with a \$3 Commonwealth to \$1 State arrangement.

Day by day, the long drought is more seriously affecting the rural sector, with quick rain needed to save this year's winter cereal crops, particularly the major export earner, wheat.

The Bureau of Agricultural Economics estimates that Australian farm incomes could be reduced to less than half last year's. The bureau estimates that there are more than 70,000 farms in drought areas carrying livestock, including 48 million breeding ewes and nearly six million breeding cows.

In other drought developments yesterday:

● The National Farmers Fed-

eration welcomed the drought measures announced by the Government, saying they were broadly in line with recommendations of the Federation and State farm organisations.

● The NFF executive met in Canberra yesterday, and will continue to meet today, to finalise a rural situation report to be presented to the Federal Government tomorrow.

● The ALP welcomed "belated" moves by the Commonwealth to seek ways of giving more assistance to farmers but said Mr Nixon had been blind to problems facing farmers and the States and had constantly stated that present arrangements were adequate.

"The only reason that the Government is acting is because on one of the Prime Minister's recent visits to Australia he saw a 'droughty sunset' and decided he had to act and undercut Mr Nixon," the Opposition's spokesman on primary industry, Mr Kerin, said.

Mr Kerin said the Government needed to bring in special unemployment relief in drought areas, restore rural adjustment funds to Whitlam Government levels, and "get off its backside and respond to the legitimate needs of Australian farmers".

Situation in Victoria

Melbourne THE AGE in English 1 Sep 82 p 1

[Text]

Melbourne and large parts of Victoria have just experienced the driest winter on record, with most districts receiving less than one-quarter of average August rainfall.

Figures released yesterday by the Victorian office of the Bureau of Meteorology show that east Gippsland was the only area to receive near normal rainfalls for the past three months.

Eastern Australia enters the first day of spring with water storages dropping rapidly and a rural economy looking to Federal and State Governments for financial assistance. Industry sources predict that summer fruit and vegetable prices could rise sharply unless good spring rains follow the dry winter.

The official figures confirm the drought is likely to equal the worst in memory. June, July

and August produced the driest winter on record in the north central district, the upper north-east, and the western district. Winter has been the driest since 1914 in the northern country and the lower north-east.

Southern Victoria was worst affected by drought, with most parts receiving less than half normal levels, with the exception of east Gippsland, which had two-thirds normal rain levels. In the north less than one-third normal rain was received.

Melbourne has received less than half its normal winter rainfall, with 71.8 mm falling in the city. The previous driest winter was 1928, when 75 mm was recorded in a Melbourne winter. Temperatures in the city were the highest winter level since 1969, with the average daily maximum reaching 14.8 degrees.

Extent of Problem

Canberra THE AUSTRALIAN in English 31 Aug 82 p 1

[Article by Vernon Graham]

[Text]

CABINET will review drought relief today in the wake of a report that 80,000 farms - 60 per cent of Australia's total - are stricken.

The Prime Minister, Mr Fraser, hinted yesterday the Government would offer increased drought assistance at a special meeting next Monday of the Australian Agricultural Council, which comprises federal and State agriculture ministers.

The National Farmers Federation opens a two-day meeting in Canberra today to finish drafting a report to the Cabinet, describing the crisis in rural industry and recommending ways the Government can alleviate it.

A federation spokesman, Mr Jim Macnamara, said the drought was only one of several problems sending agriculture to the brink of collapse.

"The drought could be the straw that breaks the camel's back," he said, referring to the

Federal Budget decision to maintain protection for manufacturing and ignore the rural sector.

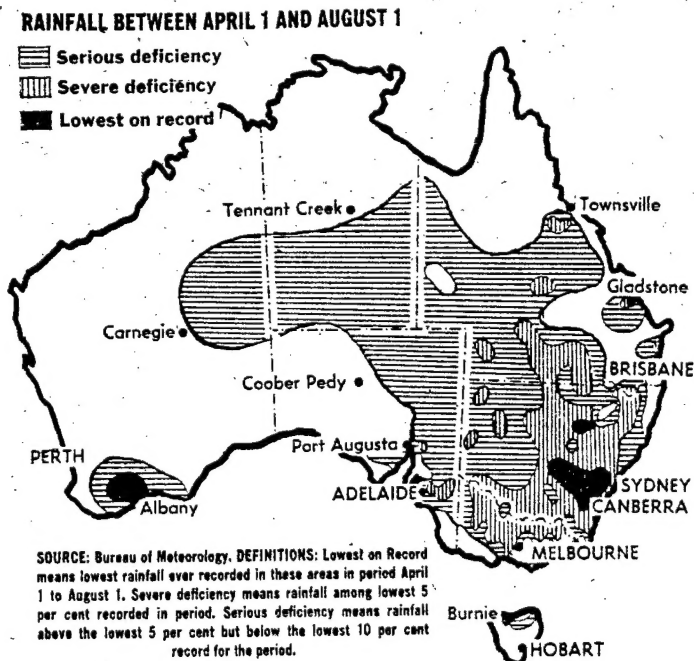
Aftermath

The Minister for Primary Industry, Mr Nixon, told a meeting of the South Australia Rural Media Association yesterday that 80,000 farms were drought-affected. NSW, Queensland and Victoria were the hardest-hit and South Australia was close to joining the "drought club".

He said drought-hit properties were carrying 48 million breeding ewes and 6 million breeding cows and these animals had to be protected.

"Even though attempts have been made for years at cloud-seeding, governments can do nothing to bring rain," he said.

"However, they can provide as much assistance as possible to help keep farmers going through the drought period and help them rebuild again in the aftermath of a drought.



"In the last two financial years, the Commonwealth has provided the States with more than \$110 million for natural disaster assistance, \$92.6 million of which was specifically for drought aid."

Mr Nixon denied Monday's meeting of agriculture ministers would review current federal-State funding arrangements for natural disaster relief, which requires each State to spend a base sum at the beginning of each financial year before the Federal Government provides money. In the case of NSW, the base amount is \$10 million.

The NSW Minister for Agriculture, Mr Hallam, will visit the worst-hit areas in the State tomorrow to gather information for Monday's meeting. He will visit Cooma, Parkes and Walgett accompanied by senior members of the NSW Livestock and Grain Producers Association.

Mr Hallam is seeking large increases in federal funds for rural adjustment and money for a special unemployment relief scheme in NSW country areas.

More than 90 per cent of NSW is drought-stricken.

The acting Premier of Victoria, Mr Fordham, said yesterday the drought there would soon rival that in NSW. A total of 27 shires had been

declared drought areas and another 20 wanted to be added to the list.

The Victorian Department of Agriculture said about 25 per cent of the State was seriously affected by the drought.

Hot, dry weather across the eastern grainbelt in the past week has ruined many crops and it seems unlikely NSW will produce more than 2 million tonnes of wheat this season. Most crops have been stunted by the summer-like temperatures.

Despondent

A Department of Agriculture agronomist at Dubbo, central-western NSW, Mr Col Mullen, said yesterday one more day of hot, windy weather would finish wheat crops. Already, many farmers had given up hope of a harvest this season.

The one bright spot is in Western Australia where drought areas have received an average 30mm of rain in the past two weeks. In contrast, hardly any rain has fallen in South Australia, Victoria, Tasmania, Queensland or NSW in August.

Many areas of NSW have suffered record low rainfall levels, the worst-hit areas being the southern tablelands and slopes and parts of the central-western tablelands and slopes.

Situation in NSW

Sydney THE SYDNEY MORNING HERALD in English 30 Aug 82 p 1

[Text]

More than 90 per cent of NSW has now officially been declared drought-stricken and will become eligible for immediate drought aid.

Announcing this yesterday, the Minister for Agriculture and Fisheries, Mr Hallam, said: "Apart from the coastal strip from the Tweed down to the Central Coast and two very small areas in the southern region, the whole of the State is drought-declared."

The declaration for September covers 51 districts (49 whole and two part) of the 58 Pastures Protection Board districts in the State — which means a further

13 areas have been added to the list of 38 districts already declared drought-stricken in August.

"This is the largest monthly increase since January, 1980, and is only one district less than the record of 52 districts in February, 1981," Mr Hallam said.

No worthwhile rain has been received in the drought-declared districts for more than six months, and Mr Hallam said the effects of the drought were worsening daily.

He said sheep numbers had declined by about 25 million and cattle numbers by about four million.

Cooma, the worst-affected area, has been continuously drought-declared since December, 1979.

The newly-declared drought regions are Albury, Balranald, Corowa, Glen Innes, Hay, Hume, Jerilderie, Merriwa, Moree, Mudgee, Tenterfield, Upper Hunter and Wyallda.

Mr Hallam said the State's wheat crop, which was earlier this year estimated to be seven million tonnes, would now yield only two million tonnes unless there was substantial rainfall within the next two weeks. Last year's wheat crop amounted to 5.9 million tonnes.

This represents a loss of \$750 million to the producer and, in

A spokesman for Mr Hallam said it had been expected that 3.8 million hectares would be planted with wheat, but only 2.7 million hectares were eventually planted.

"You need some rain after planting the crop to improve the yield, but as conditions depart from the ideal, yield per hectare declines," he said.

terms of lost revenue to the State, an estimated \$80 million loss to the State Rail Authority which would usually transport the grain.

Mr Hallam, together with Mr Harold Balcomb, president of the Livestock and Grain Producers'

Association, and members of the association's drought committee, will tour drought-affected areas on Wednesday in preparation for the meeting next Monday between the Federal Minister for Primary Industry, Mr Nixon, and all State Agriculture Ministers.

The drought, now entering its 41st month, is acknowledged as being the longest and most severe in NSW's history.

"One of the hopes of the trip is that the information gathered will go part of the way towards encouraging a reversal of the Federal Government's attitude toward's drought relief," the spokesman said.

The Federal Government requires the State Government to provide the first \$10 million of drought aid before it starts to contribute three out of every four additional dollars.

The State Government will be asking the Federal Government to assume full responsibility for drought relief in NSW, which it says has reached the scale of a national disaster.

Meanwhile, Mr Hallam's Victorian counterpart, Mr Eric Kent, has called on the Federal Government to offer drought assistance to rural businessmen as well as to farmers.

Speaking at the State ALP country conference on the weekend, Mr Kent said retailers and service industries suffered just as much during droughts as farmers.

DROUGHT CONTINUES TO WORSEN; ADDITIONAL AREAS STRICKEN

Situation in Queensland

Brisbane THE COURIER-MAIL in English 6 Sep 82 p 1

[Article by Tony Koch]

[Excerpt] More parts of Queensland are being hit by one of the most severe droughts in Australia's history.

State Cabinet is expected to add another two shires this week to the six Queensland shires already declared drought-stricken, and could add a further 11 in the next few weeks.

The drought is estimated to have cost Queensland more than \$100 million this year in lost grain production alone.

The two shires expected to be declared this week are Nebo and Etheridge. The other 11 are Livingstone, City of Rockhampton, Dalrymple, Calliope, Inglewood, Miriam Vale, Jerico, Banana, Diamantina, Duaringa and Allora.

Shires already declared are Paroo, Quilpie, Merweh, Booringa, Fitzroy and Mt Morgan.

Conditions in Victoria

Melbourne THE AGE in English 14 Sep 82 p 5

[Article by Carol Sides]

[Text]

A third of Victoria's municipalities have either been officially declared drought areas or are being considered by the State Government for drought relief.

In what has become almost a daily ritual, the Premier Mr Cain, yesterday announced that another 12 municipalities had been declared eligible for drought relief, taking the total to 52. Eighteen more have applied for relief.

In many cases the entire municipality is not affected, but 19 drought-declared shires are under review for extension of the area eligible for relief.

The weather bureau predicts fine conditions to continue for the next few days. Only scattered showers were reported over the weekend and yesterday, but there were no falls in the Mallee wheat belt and only 2 millimetres in the Wimmera.

Farmers and academics warned yesterday that the full impact of the drought is yet to be felt in country towns and in the cities.

The president of the Victorian Farmers and Graziers Association, Mr Miles Bourke, said Victorian

farmers usually spent about \$1800 million a year. He said the drought would cut that stimulus to the State's economy.

"This highlights the extent to which the drought has become a Victorian problem and not just a setback for farmers," Mr Bourke said. "The assistance to farmers will only help keep stock alive and allow them to plant crops, but will not put extra money in their pockets."

He called for better community understanding of the psychology of drought, and an end to the theory that farmers were receiving "freebies" in the form of Government assistance. Mallee wheat farmers were still 18 months from their next harvest.

Labor-intensive job schemes were needed in the country to keep communities intact. In 1967 State Government departments expanded necessary works programmes to provide employment in the worst drought-affected areas and a similar scheme should be considered immediately, he said.

Mr Bourke dismissed claims that farmers stood to make huge profits from fodder subsidies announced last week. He said wheat prices, which were related directly to world prices, provided no margin for profiteering.

Farmers could not afford to pay unrealistic prices for feed on a maximum subsidy of 80 cents a head for drought-affected stock. He said any incentive to pay inflated prices for fodder was diminished by the subsidy ceiling.

Small business interests will today lead a delegation to the Minister for Industry and Commerce, Mr Effe, and the Minister responsible for the Small Business Advisory Council, Mr Hodgman, in an attempt to get a better deal for rural communities affected by falling revenue.

The director of the University of New England's financial management research centre, Professor Geoff Meredith, said machinery repair and distribution outlets in country towns had suffered a 35 per cent drop in revenue in the past six months. A number of other small businesses were suffering a similar decline.

CSO: 5000/7504

TOXIC WASTE DISPOSAL IN SYDNEY AREA AT 'CRISIS' POINT

Sydney THE SYDNEY MORNING HERALD in English 1 Sep 82 p 9

[Article by Luis M. Garcia]

[Text]

There are 9,500 tonnes of poisonous wastes stored in the Sydney area — an accident just waiting to happen, according to a major environmental group.

The Ecosystem Group, part of the Friends of the Earth Organisation, believes that Sydney is rapidly reaching the point where the disposal of such liquid wastes could be called a crisis.

At the moment Sydney's toxic liquid wastes (about 1,500 tonnes a year) are poured into the ground at Castlereagh, north of Penrith. Castlereagh takes about 70,000 tonnes of liquid waste each year, harmless except for the 1,500 tonnes classed as toxic.

Toxic, or intractable, waste does not break down in the environment and this, combined with the fact that by 1986 all areas now used for dumping toxic waste will have been exhausted, is a great threat, says Friends of the Earth.

"We believe that the Castlereagh site is just a stop-gap, that land which is the best available for the purpose should be reserved for emergencies," Miss Annette Horsler, a spokesman for Friends of the Earth, said yesterday.

She said that when the Castlereagh site was exhausted Sydney would find itself with a lot of liquid waste and nowhere to dump it. The whole issue was politically sensitive for the Government.

The Friends of the Earth has called on the Minister for Planning and Environment, Mr Bedford, to proceed with a commission of inquiry into liquid waste disposal.

The commission was set up in April to examine the possibility of building a \$15 million toxic waste plant at Wetherill Park, west of Sydney.

Plans for the plant were dropped because of public and local government outcry, and the commission of inquiry was shelved.

Residents believed that the plant, which would have been used as a national waste disposal centre, would be a major health risk because it was only 1.2 kilometres

from Prospect Reservoir, which supplies drinking water for most of Sydney.

"This problem, however, is far too important to be brushed under the carpet, and the Government should have gone ahead with the inquiry promised when residents opposed the Wetherill Park treatment plant," Miss Horsler said.

Friends of the Earth has also called for an inquiry to be set up to investigate the siting of a national incinerator and says the inquiry should be undertaken by the NSW, Victorian and Federal Governments.

Such a plant has been recommended by a House of Representatives' report on liquid waste disposal, published earlier this year, which said that chemical waste disposal in Australia was inadequate and a "ticking time bomb."

A spokesman for Mr Bedford said yesterday that the minister had asked the Metropolitan Waste Disposal Authority to reconsider the whole matter of liquid waste disposal in NSW. The authority would report to the minister on alternatives to Wetherill Park.

CSO: 5000/7502

TASMANIAN WILDERNESS DAM ELICITS CONTINUED OPPOSITION

Plea by Scientists

Perth THE WEST AUSTRALIAN in English 7 Sep 82 p 27

[Text]

CANBERRA: At least 24 eminent world scientists have written to the Prime Minister, Mr Fraser, expressing concern over the proposed new hydro-dam in south-west Tasmania.

The scientists from leading universities have called for Federal action to save the region.

They pointed to threatened archaeological evidence of Aboriginal cave dwellers 15,000 to 20,000 years ago—evidence of man's most southerly existence at the time of the last Ice Age.

"If the sites were destroyed there would inevitably be much bitterness around the world and noisy drawing of parallels . . . with the appalling suppression in less enlightened times of the Aboriginal population of Tasmania," wrote Oxford research director Derek Roe.

Interests

Cambridge archaeology lecturer Paul Mellars has told Mr Fraser that the importance of the region "surely must transcend the short-term interests of economics and political pressure."

"The impressive discoveries in the Franklin Valley have captured the interest and imagination of archaeologists in all

parts of the world and I would urge you to do everything in your power to ensure the long-term protection and preservation of these important areas."

Professor Henry Lewis, of the University of Alberta's anthropology department said: "Considering the cruel fate of the last of the Tasmanians, surely the State Government cannot in good conscience obliterate the heritage of the first Tasmanians."

Petition

Australian National University archaeologists Dr Rhys Jones and Professor John Mulvaney wrote to overseas colleagues asking them to petition Mr Fraser.

Both referred to the "global heritage of mankind" and called on the Commonwealth to observe its responsibilities as a national government.

They called on Mr Fraser to make a public response to the pleas from the international scientific community.

Professor Mulvaney said: "Australia not only now has obligations within our own federation, but we have obligations to the world community."

"Since 1974 when the convention concerning the protection of the world cultural and national heritage was ratified by Australia . . . we have been obligated to protect areas such as south-west Tasmania."

They called for a moratorium on all further development pending inquiry into the environmental, cultural, historical and economic implications.

Pressure From Liberals

Canberra THE WEEKEND AUSTRALIAN in English 11-12 Sep 82 p 4

[Text]

THE Federal Government is facing mounting pressure to halt Tasmanian Government plans to dam the Franklin and Gordon rivers in the State's south-west.

The Young Liberal Movement called on the Prime Minister, Mr Fraser, yesterday to reject the State's plans.

This follows claims by the director of the Tasmanian Wilderness Society, Dr Bob Brown, that public support for conservation of the area is growing.

Dr Brown has also raised the possibility of legal action in the High Court in an attempt to force the Federal Government to act.

The federal president of the Young Liberal Movement, Mr Mark Birrell, said the Tasmanian wilderness area was a national asset and should be preserved.

"The Prime Minister should not give in to the Tasmanian Premier's request that the nomination of the south-west wilderness for the World Heritage List be withdrawn," he said.

"Instead he should remain resolute in his support for protecting the area and should defer any decision on funding the dam project until all other energy options available to Tasmania are carefully assessed."

Tasmanian Government Stand

Canberra THE AUSTRALIAN in English 14 Sep 82 p 32

[Article by Peter Dwyer]

[Text]

By PETER DWYER

THE Tasmanian Government will never back down on its decision to build the Gordon-below-Franklin dam, a senior government source said yesterday.

He was commenting on growing calls for the Federal Government to intervene to stop the dam project.

He said Tasmania was ready to counter any attempts by the Federal Government to interfere.

The source said Tasmania was not concerned with any lobbying in Canberra which might force a change of heart by the Federal Government.

"That's their problem, not ours," he said.

The Prime Minister, Mr Fraser, has repeatedly said the

construction of the dam in the environmentally sensitive south-west region of Tasmania was a State affair and he would not interfere.

However, environmentalists are pressing him to change his attitude and they argue that the issue is big enough to affect the outcome of the next federal election.

The latest opinion polls on the matter show that more than 40 per cent of Australians are opposed to the dam.

In the Senate last week, Senator Peter Baume said the Federal Government would support the preservation of the region.

He was referring to claims by archeologists that south-west Tasmania contained evidence that Aboriginal cave dwellers lived in the region between 15,000 and 20,000 years ago.

The archeologists have also called on the Prime Minister to intervene to stop the dam.

Senator Baume said he deplored the destruction of any site of significance to Aboriginal Australians or any significant site.

Senator Baume conceded that the Tasmanian Government had the power as a State Government to go ahead with the dam project.

Nomination

However, he repeated Federal policy to establish a national park of world significance in Tasmania, including parts of the south-west.

He said: "This policy has been publicly reaffirmed several times and the Commonwealth has supported the nomination of a large part of south-west Tasmania for the World Heritage list."

Mr Fraser is arranging a meeting with the Tasmanian Premier, Mr Gray, to discuss Tasmanian moves to withdraw the World Heritage list nomination.

He is believed to be angry at the Tasmanian moves.

Conservationists are confident that the listing will give the Federal Government power under the Constitution to stop the dam. The Attorney-General's department is believed to have given similar advice to the Prime Minister.

But Mr Gray has accused Senator Baume of being misinformed.

He said: "The Government is seriously concerned at any proposal that reverses its sovereign right over such a large area of Tasmania. We will be putting that point to the Prime Minister."

CSO: 5000/7503

ATTORNEY GENERAL SAYS FEDERAL GOVERNMENT HAS POWER TO STOP DAM

Melbourne THE AGE in English 30 Aug 82 p 1

[Article by Simon Balderstone]

[Text]

CANBERRA. — The Federal Government has the constitutional power to stop dams being built in the Tasmanian south-west, the Attorney-General's Department has said.

An opinion from the department tells the Federal Government that it has the power under several sections of the Constitution to legislate for overriding control of the wilderness area.

The Tasmanian Liberal Government is planning to flood environmentally sensitive sections of the south-west for hydro-electric development.

The legal opinion is believed to name Section 51 of the Constitution as one of the several "heads of power" in the Constitution the Government could use. Section 51 provides that the Commonwealth shall have the power to make laws with respect to "external affairs".

The president of the Australian Conservation Foundation, Mr Murray Wilcox, QC, says in a letter to the Federal Government that a recent High Court decision means the Commonwealth clearly has the constitutional power to legislate to save south-west Tasmania.

In the *Koowarta v Bjelke-Petersen* case earlier this year, the High Court ruled that the Commonwealth had the power to introduce legislation to give effect to international conventions to which it is a party.

It is widespread legal opinion that the decision has implications for the Federal Government over a wide range of issues, including the environment, although the Attorney-General's Department opinion does not focus on the *Koowarta* decision.

The Commonwealth Government is a party to the UNESCO Convention for the protection of the World Cultural and Natural Heritage, and Mr Wilcox told the Minister for Home Affairs and Environment, Mr McVeigh: "A useful first step to safeguard south-west Tasmania would be for you to introduce legislation to give effect to the convention."

"This could, of course, be complemented by Commonwealth actions to safeguard the Tasmanian economy," he said.

Mr Wilcox said the tests applied by the High Court regarding international conventions appeared equally applicable to any legislation designed to implement the UNESCO heritage convention.

He said that from the foundation's discussions with members of the Government, the foundation believed there was widespread support within the Government parties for constructive actions to safeguard south-west Tasmania.

The Federal Government has rejected moves by the Tasmanian Liberal Government to have the nomination of the region for the World Heritage list removed. The Prime Minister, Mr Fraser, is strongly opposed to such a move.

The Federal Government nominated south-west Tasmania for the World Heritage list last November. The area nominated for the list includes several national Parks and the area which would be affected by the proposal to build a Gordon-below-Franklin power scheme.

Mr Fraser says that the dam question is the responsibility of the Tasmanian Government. "That responsibility cannot be

transferred "merely" because a State Government's decision does not suit some people," he said in February. But he has also extolled the virtues of the wilderness area and seems personally opposed to damming the Franklin River.

Mr Wilcox says that the wilderness area, by being put on to the National Estate register in July 1980, "may be said to have been identified by an agency of the Commonwealth Government as being part of Australian 'natural heritage'".

The Federal Government has repeatedly argued that environment protection and development decisions in south-west Tasmania are the responsibility of the Tasmanian Government, saying that Commonwealth powers in relation to environment protection are only incidental to other powers.

CSO: 5200/7502

WA GOVERNMENT ACTS TO IMPROVE MANAGEMENT OF COASTLINE

Perth THE WEST AUSTRALIAN in English 14 Sep 82 p 3

[Text]

THE WA Government has taken steps to improve management of the coastline.

A coordinating committee of senior government officers will be established to supervise the preparation of coastal management plans.

Initially the plans will cover important sections of the coast and eventually the whole coastline.

The Premier, Mr O'Connor, said yesterday that the plans would identify resources and aim to coordinate such aspects as coastal engineering works, soil conservation, recreation and conservation reserves.

The committee would deal with coastal problems and conflicts on an inter-departmental basis.

Mr O'Connor said that a working group had nearly completed plans for two areas within the Shire of Esperance.

The Department of Conservation and Environment was preparing a management

plan for the Mandurah-Bunbury area.

Agreement had been reached with the shires of Denmark and Albany on terms of reference for a major coastal management plan that would start soon.

Smaller plans were being prepared for other areas including Kalbarri, Jurien Bay, Penguin Island, Windy Harbour and Hopton.

CSO: 5000/7503

GOVERNMENT REPORT CHARGES POLLUTION CONTROLS ARE INEFFECTIVE

Melbourne THE AGE in English 14 Sep 82 p 3

[Article by Rosslyn Beeby]

[Text]

By ROSSLYN BEEBY,
environment reporter

A Federal Government report says Australia's pollution controls are ineffective and should be subject to an independent inquiry.

The report claims developers are able to treat existing pollution controls as a mild inconvenience because of the low-key status of the controls and their limited legal application.

In its review of Victoria's controls, the report criticises the Environment Protection Authority for its "routine" approval of waste discharge licences.

The report claims that during 1978-79, 1101 licences were issued and only 10 applications refused by the EPA. It concludes that "it is questionable whether licence requirements have succeeded in reducing pollution to a satisfactory extent".

The report, prepared by Mr Robert Fowler, of the University of Adelaide Law School, was commissioned by the Federal Government to help improve environmental legislation and administration.

The Minister for Home Affairs and Environment, Mr McVeigh, has described the report as a landmark, and "the most significant undertaking of its kind in Australia".

The report examines the application of environmental impact assessment, planning and pollution controls in New South Wales, South Australia and Victoria.

Its criticisms of Victoria's environmental controls include:

- Exclusion of Government developments from environmental impact assessment.

- The uncertain status of environment impact assessment in relation to existing development controls.

- The ambiguity of the Environment Protection Act 1970, in defining licence requirements.

- Insufficient provision for public involvement in environmental impact assessment procedures.

Mr Fowler describes the Environment Effects Act 1978 as providing "a fragile basis for public participation" in assessment procedures. Under the act, there is no requirement that environmental impact statements be made available for public comment, or that the statement be revised in the light of comments received.

Mr Fowler recommends that more opportunity for public involvement be incorporated into most Australian environmental impact assessment procedures.

He also recommends that the legal status of environmental impact assessment be improved to ensure developers observe EPA findings.

Mr Fowler said that, compared to many existing controls, an environmental impact statement was not restricted to commenting on pollution effects of a development. It included physical changes to land and vegetation, effects on wildlife or scientific features and aesthetic impact.

He said impact assessment procedures had been incautiously "overlaid" on existing controls without any thought for their administrative relationship.

"Such controls have been implemented in a relatively closed administrative system, to which the public has been allowed either limited or no access," Mr Fowler said.

"Remarkably little critical attention has been directed to pollution controls in Australia, and there is a consequent lack of information concerning their effectiveness."

EPA USE OF SELF-MONITORED DATA IN PROSECUTIONS DEBATED

Melbourne THE AGE in English 11 Sep 82 p 13

[Article by Rosslyn Beeby]

[Text]

The acting chairman of the Environment Protection Authority, Mr John Alder, says self-monitored data should not be used to prosecute companies for pollution offences.

He said it was preferable to build up "a situation of trust" with companies supplying data to the EPA, rather than to use the data to prosecute those companies for licence breaches.

Mr Alder confirmed that the EPA had been advised in January this year by a Queen's Counsel, Mr Douglas Graham, that self-monitored data could be used to prosecute polluters. He said the report had been circulated confidentially to members of the EPA's pollution control and waste-management committee earlier this year.

The EPA had not acted on Mr Graham's advice because it was heavily qualified by the opinions of the EPA's own lawyers, he said.

The secretary of the environment law section of the Law Institute of Victoria, Mr Kevin Zervos, said the EPA should take Supreme Court action to establish its right to use self-monitored data to prosecute companies.

"The state of legal limbo surrounding this issue is creating an atmosphere of uncertainty and insecurity which is open to abuse," he said.

"The EPA must assert itself. At the moment industry is uncertain of how far it can go and everybody is watching everybody else. The EPA has got to find out where

it stands and the only way to do this is by a test case, even if this involves taking the matter before the Supreme Court."

Mr Alder said there was a chance that the EPA would consider Supreme Court action if a suitable test case arose. No licence breaches had so far warranted such action, he said.

Mr Alder said he believed the present system of requesting companies to provide records of their emission levels was the most cost-effective way to enforce EPA licence restrictions.

The EPA preferred to prosecute using data gathered by its own officers, he said. Self-monitored data could be used as an audit, and if data indicated an increasing trend in "off-limits" emissions, EPA officers would check emission levels and use the data to prosecute offenders.

"It would cost millions of dollars in funds and staff to do it any other way," he said.

He said he did not believe that self-monitored data should be admissible as evidence for prosecution.

"I believe it is a better scheme to build up a situation of trust with these companies — to get the best available information and to send our own staff in to do an audit if the data show it to be necessary," he said.

The director of the Conservation Council of Victoria, Mr Peter Brown, said the EPA's reliance on self-monitored data was "a partial and ineffective" way of policing licence regulations.

VICTORIAN GOVERNMENT TO PHASE OUT USE OF HERBICIDE 2,4,5-T

Melbourne THE AGE in English 26 Aug 82 p 4

[Article by Carol Sides]

[Text]

The Victorian Government hoped to phase out the use of the herbicide 2,4,5-T through the introduction of alternative biological controls, the Minister for Lands, Mr Mackenzie, said yesterday.

Mr Mackenzie said that a new biological control unit, announced yesterday, would give priority to developing alternatives to 2,4,5-T, in line with Government concern about the use of chemical controls.

He said there were "enormous problems" and a lot of misunderstanding about the use of herbicides in Australia. "We would like to be in the happy position where we don't have to use them," Mr Mackenzie said. He was speaking during the opening of a new training building at the Keith Turnbull Research Institute at Frankston.

Research staff from the institute and the Burnley Plant Research Institute will be amalgamated to establish the new biological control unit. Mr Mackenzie said the unit would expand in the next few years in

the face of increasing costs of agricultural chemicals and world criticism of the use of chemicals.

He said he hoped more money would be available in next year's Budget to push further with biological research.

He said 2,4,5-T was under constant review since the decision in May to restrict its use and to reduce the permissible level of its highly toxic component dioxin by 1000 per cent. Aerial spraying has also been banned. Mr Mackenzie said the herbicide 2,4-D was also under review.

In other policy decisions announced yesterday Mr Mackenzie said the Vermin and Noxious Weeds Destruction Board would be disbanded, and staff absorbed into the Lands Department. Inspection staff would become land management officers, with wider responsibilities over Crown land.

Arrangements were still to be finalised, but Mr Mackenzie said the role of farmers would be maintained through a Farmers Advisory Council with a full-time chairman.

NSW WEIGHS ATTACHED HOUSING, INCREASED DENSITY

Sydney THE SYDNEY MORNING HERALD in English 15 Sep 82 p 3

[Article by Mike Steketee]

[Text]

The NSW Government is considering allowing two-storey attached dwellings in all residential areas — a move which could alter the character of large parts of Sydney.

The housing committee of Cabinet has directed the Department of Environment and Planning to prepare a draft policy permitting townhouses, villa homes and semi-detached houses up to two storeys without restrictions.

Only about 15 per cent of councils allow such development throughout their areas at present. These include North Sydney, Leichhardt and Campbelltown.

The Herald obtained yesterday an 11-page document prepared by Janet Jones, a town planner in the department's central policy division, outlining a draft policy.

It includes wide-ranging powers which critics say would mean the Government could override objections to proposed developments by residents and councils.

For example, it would remove the need for councils to notify adjoining owners of a proposed development.

Government officials said yesterday that the document was an internal working paper. But it already has been substantially adopted by the executive of the Department of Environment and Planning and it will form the basis for the draft policy to be submitted to Cabinet shortly.

If Cabinet were to approve this draft it would go on public display to allow the Government to consider outside comments before any final decision.

The policy would be implemented in conjunction with a decision in July by the housing committee of Cabinet to set a target of 12,000 dwellings other than separate houses on the market each year for the next five years.

This extra supply of flats, townhouses and terrace houses would increase residential densities, as intended under the Government's urban consolidation policy.

Housing density in Sydney is low compared with many overseas cities and the Government believes a greater concentration of residents would reduce the cost of services such as water and sewerage substantially.

Approvals for dwellings other than separate houses totalled 7,687 in 1979-80 and 10,438 in 1980-81, but were expected to be 8,500 for 1981-82.

The draft policy document said approvals for this financial year were likely to be lower because of the slump in construction.

But it anticipated that the private sector would respond gradually to Government policy and said it seemed possible the target of 12,000 could be achieved by 1984-85.

The paper assumed, for example, that Government moves to make it easier to turn existing dwellings into two homes — the so-called granny flats provision — would contribute to the figure.

The paper outlined proposed incentives for residents, including releasing older people's housing for increased occupancy.

"This would include financial measures such as the deeding of properties to a public trust on guarantee of a return by capital appreciation not affecting pension rights and with rights for shared occupancy," the document said.

The Government's Land Co-ordination Unit was evaluating sites identified in nine local government areas as providing good opportunities for urban consolidation.

"It is proposed that some of these sites be made available for low-income housing, while on others development be facilitated and encouraged, for example in joint ventures between private developers, local government, the Housing Commission and the Land Commission," the paper said.

Particular emphasis should be given to using a surplus Government land for medium density housing.

Mr Ted Mack, the Mayor of North Sydney and Independent MP for North Shore, said yesterday that if the proposed policy were implemented it would be a formula for disaster which would arouse great public controversy.

BRIEFS

CONSERVATIONISM CRITICISM--Canberra--Four of Australia's leading conservation organisations combined yesterday to urge the Federal Government to face up to its responsibilities for the protection of the nation's environment. In their first combined meeting, the four groups said Australia had a heritage that was being defined but not defended. The government had vacated its leadership and responsibility towards the environment. The organisations were the 100,000-strong Australian Council of National Trusts, the Australian Conservation Foundation, the Australian National Parks Council and the Australian Committee of the International Union for Conservation of Nature and Natural Resources. In a statement after the meeting, they said they had come together in an attempt to overcome a critical situation for Australia's environment. Commonwealth funding for essential programmes like the National Estate program had not been increased for eight successive Budgets, key environmental protection legislation was simply not being used and there had been a rundown in the environmental machinery of government. [Text] [Brisbane THE COURIER-MAIL in English 15 Sep 82 p 17]

CHEMICAL CONTROLS--More effort is needed to overcome the suffering, danger and losses caused by the misuse of toxic chemicals, according to the Opposition spokesman on employment and industrial relations, Mr Bob Hawke. He said yesterday although the losses caused by industrial accidents and occupational diseases far outweighed the cost of strikes, the problem did not attract the same attention in the media and among businessmen and politicians. Mr Hawke used several past incidents involving chemicals to support a case for tighter control of their release and use. He was speaking at the annual convention in Sydney of the Agricultural and Veterinary Chemicals Association of Australia. Serious accidents involving chemicals had cost lives and posed serious danger to the community in recent years, Mr Hawke said. In October last year a fire broke out at a chemical plant in Sydney, spreading poisonous fumes over an area of about 3km. A number of firemen and local residents were hospitalized and 41 homes were evacuated. "Firemen and residents alike received no information about the choking and foul smelling fumes. In the absence of contrary information, firemen sprayed the blaze with water which only increased the conflagration," Mr Hawke said. [Text] [Canberra THE AUSTRALIAN in English 14 Sep 82 p 32]

ISLAND LITTER WARNING--The State Government may restrict the number of visitors to Fraser Island to combat widespread littering. The Environment Minister, Mr Hewitt, said yesterday a quota system might have to be introduced to protect the island's beauty spots from continued abuse. He said he was greatly disappointed to see how serious the problem was during a recent visit to the island. "Heavy handed action could be avoided if people showed more consideration in removing rubbish and avoiding damage to plant, tree and dune cover when camping and driving," he said. A documentary has been prepared by the Environment Department urging Fraser Island visitors to be more litter conscious. It will be screened at the Brisbane Boat Show, which starts on Wednesday. A department stand at the show will continue the "stow it, don't throw it," campaign. [Text] [Brisbane THE COURIER-MAIL in English 6 Sep 82 p 11]

NSW LEAD-FREE GASOLINE--The NSW Government will proclaim laws this week compelling service stations to sell lead-free petrol from mid-1985. The new regulations will also require vehicles made after January 1, 1986, to be designed to run on lead-free petrol and to meet stricter exhaust emission standards. A spokesman for the Minister for Planning and Environment, Mr Bedford, said that under the new laws all petrol distributors and retailers would be required to have lead-free petrol available from July 1, 1985. The wisdom of the move has been questioned by a team of Brisbane medical researchers writing in the latest issue of the Australian Medical Journal. "The results reported in our survey suggest that present practice of public health control and lead utilisation in all spheres is entirely inadequate." However, the researchers make no reference to several recent studies which have supported the contention that lead levels well below those presently considered safe are harming children and that much of this lead comes, directly and indirectly, from the lead in petrol. The "level of concern" set by the National Health and Medical Research Council in Australia is based on the [U.S.] EPA's standard. [Excerpts] THE SYDNEY MORNING HERALD in English 30 Aug 82 p 9]

CSO: 5000/7502

LAND ACCRETION PROJECT PLANNED FOR CHITTAGONG

Dacca THE BANGLADESH OBSERVER in English 15 Sep 82 p 8

[Text] CHITTAGONG, Sept. 14--The government has on its anvil a Taka 25.50 crore project for accretion of land from the seabed along coastal areas of Chittagong district.

According to Water Development Board (WDB) sources the Netherlands government has provided the WDB with requisite finance through a loan for implementation of this project.

About two thousand square miles of sea area of Bangladesh rivers are brought under this project since 1980. The survey "Annesha" is now engaged in hydro-graphic survey in this area.

The project envisages devising means for facilitating the accretion of land in coastal areas.

The WDB has already constructed two bamboo cross dams at rivers' confluence point on experimental basis for accretion of land. The dams gave a clear indication of reclamation of seven acres of land from the seabed in coastal areas of Kattali and Sitakunda areas of Chittagong district.

The Water Development Board under this project also turned one hundred acres of accreted coastal land free from salt. This land will soon be brought under cultivation on experimental basis.

The Planning Commission has also set up a separate committee to study the possibility of accretion of land from seabed in onshore islands and coastal areas of Bangladesh. The report of this committee is still awaited. The Inland Water Transport Corporation has also been separately undertaking hydro-graphic survey in the coastal area to keep note of accretion of land.

According to the District Administration the new land is coming up slowly along forty miles of coastal belt and around islands under Chittagong district. Roughly one lakh acres of land have been accreted in these areas since liberation.

The formation of new land is due to continuous sedimentation in the Bay of Bengal.

Bangladesh territorial sea water has the confluence of major rivers like Padma Meghna and Brahmaputra from which flow 55 lakh cusecs water every day. These rivers carry 170 crore tons sedimentation to the Bay of Bengal from India and Bangladesh. This sedimentation has great potentialities for formation of new land in this area.

CSO: 5000/7091

INDONESIA

SEAS MONITORED FOR SIGNS OF RADIOACTIVITY

Jakarta MERDEKA in Indonesian 14 Aug 82 pp 1, 11

[Text] The National Oceanologic Institute monitors Indonesian waters for radioactive waste, especially in the entrances to the two inland seas.

The head of the institute's Oceanographic Research Center, Djoko Prawoto Prasono, explained Thursday morning that intensive monitoring is done because the super-powers plan to dump radioactive waste in the Pacific Ocean.

They believe that dumping radioactive waste in the Pacific is safe. "Actually, it is safe for them, but dangerous to us," Djoko Prawono noted.

This is because the seas are not quiet, but are active. And, unfortunately, they move toward Indonesian waters, so that Indonesian waters may be threatened by contamination from radioactive waste.

Thus, monitoring is carried out, so that if radioactive waste is encountered, protective measures can be taken immediately.

Responding to a question, Djoko Prawono stated emphatically that the Center's research had not yet encountered any contamination from radioactive waste in the entrances to Indonesian waters.

According to the results of the Institute's studies, Indonesian waters can generally be characterized as "clean," especially in the internal seas like the Banda, Flores and Seram.

9197

CSO: 5000/8001

MINISTER OPPOSES EXTRACTIVE INDUSTRIES IN NATIONAL PARKS

Wellington THE EVENING POST in English 27 Aug 82 p 2

[Text]

The Minister for the Environment, Dr Shearer, yesterday strongly opposed any suggestion of allowing extractive industries, such as logging or mining, to be carried out in national parks.

That wasn't the purpose for which national parks had been set aside and quite naturally he'd oppose it, he said.

Dr Shearer rejected any suggestion that his view would put him offside with his colleague, the Minister of Lands and Forests, Mr Elworthy.

Earlier this week, at a press conference following the release of the preliminary report on the merger of the Lands and Survey Department and the forest service, Mr Elworthy did not rule out the possibility of extractive industries being carried out in forest parks.

"I have discussed the matter with the minister, and what I understand he was saying, was that if the board of management of the park approved such activities, they may well proceed."

Dr Shearer said he would be extremely surprised to see any national park board, anywhere in the country, agree to any logging in a park.

Dr Shearer said he would go along with any decision of the national parks board.

"That's what they are there for, they're chosen for their interest in national parks and they make the decisions."

"But I say again, I'd be extremely surprised if any national parks board would agree to something like that," emphasised Dr Shearer.

CSO: 5000/9078

REPORT ON NEW LANDS AND FORESTS DEPARTMENT RELEASED

Wellington THE EVENING POST in English 24 Aug 82 p 4

[Text]

Balanced use of crown land is the aim of a new lands and forests department, which will control 14.5 million hectares — more than half the country.

A preliminary report on the merging of the Lands and Survey Department with the Forest Service says the main cost saving will come from co-operation in land-use decisions.

"Decision-making by synthesis rather than conflict cannot be quantified in money terms but may be the most important single advantage of the merger," the report says.

Earlier in the report, presented to the Minister of Lands and Forests, Mr Elworthy, on August 13 and released today, the directors-general of the two departments said the merger would reduce the influence of lobby groups and encourage a wider view of land use.

Commerce is a strong thread in the more than 80-page report, with Lands director-general Mr Bing Lucas and Forest Service director-general Mr Mick O'Neill pointing out the management skills of their staff and the tourism, farming and milling potential of Crown land under the new department's control.

The department would administer 55 percent of exotic forestry, four percent of farmland, and a further 39

percent of pastoral or arable land through leases and licences.

The new department would sell 53 percent of total wood production, 2.5 percent of livestock production, and 11 percent of exotic timber.

With this commercial backdrop, the new department would also administer national parks.

At a press conference today Mr Elworthy advocated use of national parks for recreation and tourism and did not rule out extractive industries.

No name has been given to the new department, hoped to be fully merged by April 1984, nor has a decision been made on creating a separate commercial division of forests.

It is proposed to decentralise the department, with 13 or 14 regions replacing the 12 Lands and Survey districts and seven Forest Service conservancies.

District offices are expected to have significant authority but the move to regions is expected to be the most costly aspect of the merger.

The new department would employ 5000 officers and a labour force of 7400 and will spend \$330 million making it one of the top nine government agencies.

With revenue of \$220 million it would be among the top government revenue producers.

The report says the main impact on staff will be moves within the new regions as the importance of the head office in Wellington diminishes. Staff cuts will be achieved through attrition.

Mr Elworthy would give no estimate of the cost of the merger but said it would be outside three percent cut requirements as it marked a new policy, though com-

plementary cuts may be made in other areas.

Costs of the merger, the latest since the creation of the Ministry of Energy, are seen in accommodation, travel, staff appeals and transfer expenses, and the hidden cost of disruption.

Savings are seen in reduced duplication (though the report says there is a misconception of the size of duplication in the services), rationalisation of vehicle use, accommodation and savings in decision-making by co-operation.

Mr Elworthy said he did not believe public debate would be lessened with greater co-operation between the services.

Draft management plans presented to the public before decisions were taken had already proved effective guardians of the public interest, he said.

MINISTER URGES STRONGER LINE ON FRESHWATER POLLUTION

Christchurch THE PRESS in English 25 Aug 82 p 3

[Text]

PA Wellington
New Zealand should take a stronger line against the pollution of fresh water, said the Minister for the Environment, Dr Shearer, yesterday.

Addressing the Water Conference in Auckland, Dr Shearer said that New Zealand should take heed of experience in other countries and be prepared to spend the money necessary to avoid pollution.

"At the moment, we continue to discharge domestic and farm wastes into our lakes and rivers, and an increasing amount of waste from primary produce treatment plants and industrial processes," he said.

The costs of providing environmentally safe sewage treatment were high, said Dr Shearer, and many cities and boroughs found them impossible to meet.

"Yet, if they do not they risk depleting their water supply and that of others further downstream," he said.

"It has been estimated that the sewage output of New Zealand's confined farm animals is equivalent to that from a human population of 36 million," Dr Shearer said.

More farmers were now treating and using their dairy waste in a responsible way, Dr Shearer said. Spraying diluted waste over pasture was an effective way of avoiding pollution while enriching the farm soil.

Freezing works, he said, were a major cause of pollution.

"During the peak killing season in the freezing works, about 300,000 sheep, cattle, and pigs are slaughtered each day. Roughly 250 gallons of water a beast are used during the process, giving a daily use of 75 million gallons.

"Solid wastes are generally removed, but the water is still returned in a seriously polluted state."

New Zealand had a "generous endowment" of fresh water, Dr Shearer said. A small population and the absence of large-scale urbanisation or industrialisation had so far helped the country avoid the scale of man-made water pollution that many other development nations were now grappling with.

However, increasing development in New Zealand would put pressure on the country's resources, and adequate safeguards would have to be enacted, Dr Shearer said.

EUTROPHICATION OF LOCAL LAKES NOT ACUTE PROBLEM

Wellington THE EVENING POST in English 26 Aug 82 p 19

[Text]

AUCKLAND, August 25 (PA). — The problem of increased aquatic plant growth in nutrient-fed New Zealand lakes is not the acute problem that was feared a decade ago, according to an ecological scientist.

The scientist, Mr E White, of the Department of Scientific and Industrial Research ecology division at Taupo, said in a paper that "eutrophication" — the deterioration of fresh waters because of excessive additions of nutrients — has received most attention in Europe and North America.

The only New Zealand communities which contribute significantly to lake eutrophication, he said, are those at Levin and Lake Rotorua.

Sewage discharge from Levin into Lake Horowhenua have eight times the nutrient load needed to make the water eutrophic.

Lake Rotorua is subject to occasional blue-green algal blooms of sufficient intensity to "cause public concern."

Alternatives are being sought in Rotorua to prevent sewage being discharged into the lake.

There was concern that the Waikato River might deteriorate like the Rhine or Mississippi; that Lake Rotorua might become another Lake Erie; or Taupo a Lake Constance.

"With 10 years experience behind us it is clear that the early concern was an over-reaction," he said in the paper, to the 1982 Water Conference at Auckland University.

The hazard is reduced in New Zealand because of hemisphere differences, the fact that New Zealand is not a continent, and differences in agriculture and population density and distribution.

"Eutrophication is here, it will worsen insidiously, it will require control in places, but rapid and widespread environmental degradation will not occur," Mr White says.

The conference has been organised by the Institution of Professional Engineers and the Royal Society of New Zealand.

CSO: 5000/9078

PROPOSED BILLS WOULD CURB LEAD POLLUTION OF ENVIRONMENT

Christchurch THE PRESS in English 4 Sep 82 p 2

[Text]

<p>Parliamentary reporter</p> <p>Measures to control lead pollution in the environment, including limits on the level of lead permitted in petrol, are included in a bill which the member of Parliament for Nelson, Mr P. T. E. Woollaston, plans to introduce in Parliament.</p> <p>Mr Woollaston released details of his lead Pollution Control Bill yesterday, after the deputy leader of the Social Credit Party, Mr G. T. Knapp, gave notice that he also intends to introduce a bill on lead-free fuels.</p> <p>Mr Woollaston said he was pleased that Mr Knapp planned to draft a bill, which would be complementary to</p>	<p>his own.</p> <p>"Because this is such an important measure, affecting the health of the community generally, it must not become a 'party political' issue," he said.</p> <p>The draft bill had been prepared for some weeks, but he wanted to consult widely before introducing it to Parliament.</p> <p>"In the interests of public health I hope that members of all parties will unite to allow the introduction of both bills and refer them to a select committee for serious study," Mr Woollaston said.</p> <p>The bill would set out the levels of lead permitted in paint, cosmetics and petrol.</p>	<p>The maximum amount of lead allowed in petrol would be 0.15 grams per litre, the level recently recommended by the Clean Air Council. It would, however, be an interim step, leading to the elimination of added lead from all transport fuels.</p> <p>The bill would include a special exemption for marine paint, provided it was contained in a clearly labelled container. It would allow for fines up to \$5000 for breaches of the permitted lead levels.</p> <p>Mr Woollaston said he planned to introduce his bill within the next few weeks.</p> <p>Mr Knapp told NZPA that his bill essentially would require the removal of lead from fuels, by 1988.</p>
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CSO: 5000/9078

BRIEFS

ECOLOGY COURSES--Hamilton (PA)--Compulsory courses in ecology and resource conservation should be integrated into economics and engineering courses at universities and technical institutes, says the Minister for the Environment, Dr Shearer. "It is the products of these institutions who will be making most of the critical decisions affecting New Zealand's environment in the two decades to the year 2000," Dr Shearer told the New Zealand Science Teachers' Conference in Hamilton. Sustainable growth could only be achieved by careful conservation of the basic resources of land, air, water, forests, and fisheries, he said. Dr Shearer called for regular environmental education programmes to be introduced in all levels of Government and private enterprise, to reach the administrators and entrepreneurs of the future. A basic knowledge of New Zealand's flora and fauna should be built into all biology and social studies courses offered by schools and training colleges," he said. "It is vital that our children are given an early appreciation of this country's unique ecology, its endangered wildlife, and their basic needs for survival in face of the continuing pressures for development," said Dr Shearer. [Text] [Christchurch THE PRESS in English 26 Aug 82 p 29]

CSO: 5000/9078

PREVENTION OF POLLUTION OF UNDERGROUND WATER STRESSED

Beijing SHUIWENDIZHI GONGCHENGDI ZHI [HYDROGEOLOGY AND ENGINEERING GEOLOGY]
in Chinese No 4, 1982 p 29

[Article by Zhang Shaozeng [1728 4801 1073] of the Guangxi Hydrogeological and Engineering Geological Brigade: "The types of Pollution of Underground Water in the Guangxi Karst Region and Their Prevention"]

[Text] In the Guangxi karst region, the karst region's underground water has been directly or indirectly polluted to varying degrees because of improper treatment of the "three industrial wastes," sewage, and garbage, and because of the massive use of farm chemicals and chemical fertilizers. Guangxi now has over 10,000 large and small industrial and mining enterprises. They are mostly located on the two banks of rivers and in the karst region. Each day, they release over 4 million tons of industrial waste water and sewage. Sewage constitutes 23 percent, and it mostly drains into the rivers and farmland. Some of it directly drains into the karst caverns and pollutes underground water.

Results of environmental hydrological and geological surveys conducted in recent years show that there are the following four types of pollution of underground water in the Guangxi karst region:

1. Underground water is mainly polluted by organic and inorganic compounds, heavy metals, farm chemicals and chemical fertilizers. For example, in the areas of the Liuzhou City Chemical Plant, the Dongfeng Chemical Plant, the chemical industry zone in southern Guilin City, underground water is seriously polluted mainly by chemical substances.

Analysis of the survey data of pollution of underground water in the Guilin karst region (See Table 1) shows that chemical pollution of underground water has the following characteristics:

Table 1

Item of inspection	Year	Percentage detected (%)	Percentage surpassing allowable standard (%)
mercury	1979	28.4	84.8
manganese	1979	4.3	60.0
phenol	1978	18.2	60.0
sulphides	1979	72.2	100
lead	1975	8.5	33.3
arsenic	1979	78.4	0
fluorides	1979	31.9	0
cyanides	1976	6.1	0
chromium	1979	7.8	0
cadmium	1979	1.8	0

(1) Many types of harmful substances are detected. The content of some substances has surpassed the health standards, indicating that the underground water has been polluted by the "three industrial wastes." (2) The contents of amino nitrogen, nitrite nitrogen and nitrate nitrogen in the water are high, and some have surpassed our nation's standard for drinking water or reference criteria, and there is a trend toward a gradual increase over the years. This shows that underground water is also seriously polluted by pollutants from living and other organic substances. (3) The total hardness of water tends to rise gradually over the years. (4) In localized regions, the content of chlorine ions is high.

2. The Types of Biological Pollution

The waste water from some thermal power plants, steel mills and chemical plants generally has a relatively high temperature. Some of the waste water reaches over 30°C. When such waste water is drained underground, the underground water temperature can be raised 5°C to 6°C, causing the underground water to lose its function as a coolant.

4. Types of Radioactive Pollution

The sewage released by the isotope treatment ward of hospitals and the waste water from washing ores at some mines and waste water from certain national defense industries contain radioactive materials. They are released everywhere and they can directly or indirectly pollute underground water and cause damage.

This region is mainly polluted by chemicals. The distribution is wide, pollution is serious and the damage is greater.

Because the speed of flow of underground water in the karst region is slow, the amount of flow is small, the ability to dilute and disperse pollutants is small. At the same time, the pollutants are buried deeply underground and they are not irradiated by sunshine, thus there are no ultraviolet rays

to kill the bacteria, etc. Therefore, when underground water is polluted, it is not easy to restore it to the original state. According to domestic and foreign experience, the amount of work in treating pollution of underground water is great, it is time consuming, a lot of investment is required and the results are small. Also, pollution of underground water cannot be easily detected and monitored. Therefore, the problem of pollution of underground water in karst regions should be solved mainly by prevention. The concrete measures generally include the following:

1. Based on the principle of mainly prevention, we should actively prevent pollution of underground water, prohibit the release of industrial waste water and sewage and other pollutants into underground water. When pollution is discovered, we must take timely measures to eliminate the cause of pollution and cut off all polluting sources.
2. We must establish and make sound a network of underground water monitoring stations, develop environmental hydrogeological surveys and constant monitoring of underground water quality, understand the pattern of movement of underground water in the karst region and the change in water quality, make correct forecasts to improve the scientific basis for preventing pollution of underground water.
3. We should take effective technical measures to hasten the movement of underground water, and increase the amount of water to improve the self-purifying ability of underground water. For example, we can supply water artificially or regulate the amount of underground water. Localized pollution can also be eliminated by using purifying agents so that purification of underground water can be hastened.
4. We should establish a sanitary protection zone at the source of underground water. We can eliminate all polluting sources in the protected zone. We can plant a protective forest belt and strictly protect the environment at the source to prevent pollution.
5. We can strictly carry out environmental protection laws, strengthen environmental management, conduct comprehensive utilization and treatment of the "three industrial wastes" and sewage actively to reduce pollution of the environment and underground water by harmful substances.

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PHILIPPINES

TOP RIVER POLLUTERS LISTED

Manila PHILIPPINES DAILY EXPRESS in English 20 Sep 82 p 2

[Text] The mining, chemical and paper industries are the three top polluters of rivers in the country.

The National Pollution Control Commission pinpointed the top sources of water pollution through the inspection of 4,059 industrial establishments nationwide.

In a briefing paper for the Safety Organization of the Philippines Inc., NPCC Commissioner Pichache reported that of the firms inspected, 1,672 were found air-pollutive; 1,227 water-pollutive; 453 were without air pollution control devices; and 505 without water treatment plants.

The NPCC inspection sought to determine how far industries have gone in installing pollution control facilities. An anti-pollution law gave these industries until 1987 to come up with such protective devices.

In the case of the mining industry, the NPCC found that the 24 mines active as of the 1981 last quarter were disgorging from 100,000 to 144,000 metric tons of tailings daily. The tailings or refuse from the mines are usually dumped into rivers, creeks and coastal waters.

As a result of this dumping, NPCC said nine rivers in Luzon have become polluted, three in the Visayas, and one each in Palawan and Marinduque.

The tailings also cause damage to agricultural fields. NPCC said owners of damaged farm lots have sued for damages with some of the mines made to pay. Other damage suits await court decision.

Pichache said pulp and paper mills, which are usually located at or near rivers, are the second polluters of the waterways. Like the mines, they dump their industrial refuse into the rivers.

The chemical industry is third on the NPCC list. Of the 60 types of chemical plants in operation in the country today, the most pollutive are those producing plastic products, caustic sodas, chlorine and acid.

NPCC found that soda and chlorine manufacturers operating in Luzon and Northern Mindanao also discharge mercury in their effluents.

Pichache said his office is tightening up on the chemical plants in the installation of anti-pollution facilities. The same action applies to the textile industry whose wastes, like those of the chemical plants, render rivers inhabitable to marine life.

Chemical fertilizer and pesticides used in the agricultural sector are described by NPCC as the fourth leading cause of water pollution. Such formulations form part of the run-off from the agricultural fields which eventually end up in the rivers and creeks, NPCC explained.

On air pollution, Pichache described the situation as still within safe limits although it remains a "major challenge" as in the case of water pollution.

NPCC said air pollution is mostly a problem of the urban areas, particularly Metro Manila where majority of the nation's industrial establishments are located.--Depthnews

CSO: 5000/4300

PHILIPPINES

BRIEF

RELAXATION OF POLLUTION RULES--The mining industry sector urged the government to relax the existing environmental rules on the ground that they are not only expensive but also difficult to comply with. Some mining industry leaders even went to asking for the phaseout of the National Pollution Control Commission or at least suspend its function temporarily. Industry leaders told the Philippine Chamber of Commerce and Industry (PCCI) yesterday that this setup usually creates confusion wherein a proponent is not sure which agency to deal with for a particular requirement or set of requirements. While the required anti-pollution equipment is dependent on the number of pollutants released by a company and the size of the plant, the mining industry sector claimed that any antipollution equipment will entail millions of pesos for a company. [Text] [Manila BULLETIN TODAY in English 11 Sep 82 p 25]

CSO: 5000/4300

KELANI RIVER POLLUTION EXAMINED

Colombo SUN in English 16 Sep 82 p 7

[Text] Colombo's big river is polluted. The police and health authorities have called on people to refrain from drinking it or bathing in its waters. And hundreds of fish have been poisoned by a toxic substance, that has polluted the river.

The Kelani, once a clean and wholesome waterway eulogized by the Sinhala poets and writers or yore has turned into a murky sewer.

The blue waters have already become a muddy brown full of effluents dumped by industrialists, residents as well as the local authorities themselves.

By the time the river waters reach the sea, the level of contamination is believed to be very high. So much so that almost every year the Kelani estuary gets declared as a potentially dangerous zone and a veritable health hazard.

It was just a few months ago that the health and police authorities placed an embargo on consuming water and bathing in the lower region of Kelani following an epidemic of cholera.

The current malady afflicting the Kelani is admittedly a more hazardous one. The waters have been poisoned so as to destroy all its marine life. It is indeed an environmental disaster.

The government must launch an immediate probe into the source of toxic poisoning. Whoever is responsible must be taken to task. For the crime is decidedly grievous.

The investigators must not only look for pollutants pumped in by industrialists both in private and public sector, but they must also look deeply at the sea for poisonous oil discharged by ships which can contaminate the waters and destroy the marine life. The indiscriminate dumping of filthy faecal matter by local bodies too impedes life in these waters.

Strict ecological oriented laws are necessary to control pollution. The current fiasco in the Kelani is one good reason why these laws should be

expedited. The proposed legislation to safeguard the marine and coastal environment should be made operative without delay.

Likewise, industrialists and local authorities should be compelled to adhere to anti-pollution mechanisms so that they would refrain from contaminating the existing waterways as well as the coastline.

CSO: 5000/4300

ENVIRONMENTAL DAMAGE TO SEAFOOD, BEACHES DESCRIBED

Bridgetown ADVOCATE-NEWS in English 8 Sep 82 p 4

[Editorial]

[Excerpts] Environmental damage sneaks up on you and when you realise it you have a disaster on your hands. That is the lesson to be learned from the present scarcity of sea-eggs, Barbados' much loved seasonal delicacy which now threatens to become a rarity.

Pollution in the form of spent lees from rum refineries, untreated sewage, effluent from treated sewage, chemical wastes from industry and just plain domestic garbage has been attacking the pelagic areas of Barbados, because Barbadians have been unaware of or have ignored the fact that the entire country and its environs are inseparable parts of one integrated system and we interfere with one section with peril or risk to the whole.

Within the memories of this present generation of Barbadians are periods when sea-eggs could be found off any beach, bought day and night from hawkers willing to come to your home or stay in the markets and near the bus stands late at night, because sea-eggs were so plentiful. And Barbadians could readily enjoy the delicacy all through the season.

The present generation of Barbadians will also remember how easy it was to buy crabs and lobsters around the beaches, and that "sea-moss" was a regular component of Barbadians' diet. Now these things are also expensive delicacies if one can encounter the imported varieties.

Barbadians have also seen the drastic erosion of the beaches and the alteration of the coastline. Some of this has been attributed to the destruction of the coral reefs that surround the island, and again unwise exploitation has been partly responsible for this.

Now that the stark reality of \$35 for a half gallon container of sea-eggs--if you can find them--has hit home, will Barbadians alter course in their pursuit of environmental destruction? Probably not. But they should realise that environmental destruction can become a habit and we are really on the way to wrecking the whole island, not just killing off the sea-eggs and fish.

BEACH PRESERVATION FAILURE

Bridgetown ADVOCATE-NEWS in English 8 Sep 82 p 1

[Text]

Although it lost its case last year in trying to preserve a beachfront property on Barbados' west coast, the Windows-to-the-Sea Group is still today maintaining its original position.

That position, based on the formation three years ago of the small action group, is to restrict any new development on local beaches.

Questioned about the current "quietness" of the group, top official of the group, Mr. Andrew Bynoe, said they were very disheartened over the lack of support from Government and the general public.

He remained convinced that the Windows-to-the-Sea cause was one which every Barbadian should rally around.

The beachfront property at Payne's Bay, St. James, which the group was trying to preserve is now the location of a hotel. Feverish efforts by the group to purchase the property proved futile.

The Group has refunded a \$10 000 gift it had received from a concerned expatriate resident at Sandy Lane Estate to assist in purchasing the Payne's Bay property.

"It was shameful of Bajans and Government not to have contributed to the cause when a non-Barbadian could have provided in excess of 75 per cent of the group's funds," Mr. Bynoe said.

"We found that we have not got any support ... we cannot do it all by ourselves," Mr. Bynoe added.

CSO: 5000/7501

CRUISE SHIP SOOT ACTION

Hamilton THE ROYAL GAZETTE in English 11 Sep 82 pp 1, 5

[Excerpts]

The St. George's Citizens Committee will stop protesting the emission of excessive soot from the cruise ship Volendam until next year when corrective equipment will have been installed on the Holland America Cruises vessel and its sister ship, the Veendam.

That word came yesterday from Committee Chairman Mr. Ernest "Dickie" Drew following a meeting with Government and cruise ship officials on Thursday.

"We will take no further protest action against the ship until she comes back next year," said Mr. Drew, adding that his Committee was impressed with the concern being shown by both Government and the cruise ship line.

And the Hon. Mr. William McPhee, Minister of Transport, Marine and Air Services, said yesterday that the cruise ship line will have spent \$160,000 on the two ships this year to reduce soot emissions.

That was the word the Minister took to the meeting with the St. George's Citizens Committee, which was up in arms this year over the level of soot descending on the East End town.

In a separate meeting with The Royal Gazette, Mr. McPhee and Government's principal marine surveyor, Mr. Ron Ross, outlined what steps had been taken and will be taken by Holland America.

□ Both ships are burning a higher and cleaner grade of fuel, boosting the two ships' fuel bill by about \$4,000 each.

□ The ships' combustion levels have been improved.

□ An extra third engineer has been posted to boiler watching duties on both vessels while in Bermuda ports.

□ And a quartermaster has been given bridge duty on both ships to keep a "smoke watch".

He added the company is also considering the installation of soot arresters to reduce the level of cinders being emitted.

"I am satisfied that all reasonable steps to reduce the level of soot emission have been taken," said Mr. McPhee.

CSO: 5000/7501

ROUND TABLE DISCUSSES CIENFUEGOS BAY CONTAMINATION

Havana BOHEMIA in Spanish 20 Aug 82, No 34 pp 28-31

[Round table discussion with Ramon Rodriguez Cala, Rene Ledesma Rangel, Irene Gonzalez Mujica, Felix E. Otero Molina, Juan Francisco Suerias, Daniel Alujas Gonzalez, Lazaro Cortes Ruiz, Orlando Martin Sanchez, Jorge Luis Delgado Astorquiza and Roberto Tiel de Leon reported by Gregorio Hernandez in "Economics" section of BOHEMIA: "The Contamination of Cienfuegos Bay"]

[Text] The scientific and technical revolution which man's intelligence has with great drive and in uninterrupted fashion favored since the beginning of the 19th century — and, of course, in a more pronounced way in the present one — is obviously generating material progress, comfort and well-being, not only for the human race, but for life in general. However, as though in re-affirmation of the laws of evolution, a negative contradiction is germinating within this phenomenon that has its roots in the intellectual fecundity of man, stimulated by the objective conditions of existence, that is, let us say, to cite but a single example, the polluting energy that tends to destroy what nature has created.

The battle against this terrible apparition, which, aside from nuclear power used to wage war, endangers the planet's long-term ability to survive, is taking place on a large or small scale throughout the world, even though they may be only cries of alarm. In our case, where a general concern over this prevails — and we already have very specific laws governing the matter — the greatest effort has been made — and this is only natural due to our insular situation — in the protection of our seas and rivers.

We are struggling to preserve our fauna and flora, our resources above and below the bed of our watery heritage, and in some cases to rescue them. This is the reason for the state and the party's conspicuous interest in dealing with this matter in time so that it does not become a large-scale problem the solution to which would then be more complex and costly in addition to increasing a danger that is now fundamentally potential, except in a real case like, let us say, that of Havana Bay, whose waters are practically dead, that is, devoid of life.

A work committee has been organized in the province of Cienfuegos which brings together representatives of various agencies and institutions that are directly

or indirectly working on a matter of very specific interest to the region and, consequently, the nation, that is, better environmental protection. This group is the COPREMA (Environmental Protection Committee), which, since it was founded, has strongly endorsed measures that range from inspection, including reports on and the presentation of cases in court involving organizations that violate the provisions of environmental protection laws, to the formulation of recommendations or suggestions to limit certain situations that are harmful to the ecosystem of these water resources. Through its achievements and brilliant prospects, this work has already attained national scope, which is why the objective of our presence on the beautiful Perla del Sur is to provide details on this generally well-known effort through the panelists present at this round table.

The conference room of the Executive Committee of the People's Government of Cienfuegos Province was the setting for this explanatory and even deliberative conference, during which the various issues that are relevant to the problems of pollution of the seas and rivers of this part of the country were examined as was also that of providing information on measures that have been suggested and applied to check pollution now and completely eradicate it in the long run.

The following people participated at the round table: Roberto Tiel de Leon, the chairman of COPREMA and a member of the Executive Committee of the Provincial Assembly of the People's Government; Felix E. Otero Molina, the chairman of the Technical Subcommittee and an official of the MINSAP's [Ministry of Health] Provincial Center for Hygiene and Epidemiology; Orlando Martin Sanchez, the head of the Controller's Office in the province and chairman of the Legislative Subcommittee, and Jorge Luis Delgado Astorquiza, the provincial controller; Ramon Rodriguez Cala, the district director of the MITRANS [Ministry of Transportation] Maritime Safety Department; Rene Ledesma Rangel, the head of the MININT [Ministry of Interior] Harbormaster's Office of the port of Cienfuegos; Daniel Alujas Gonzalez of the Provincial Directorate for Physical Planning of the People's Government; Irene Gonzalez Mujica, an official of the Center for Hygiene and Epidemiology; Lazaro Cortes Ruiz, the provincial deputy director of the National Institute for Veterinary Medicine of the Ministry of Agriculture; and Juan Francisco Suerias of the Directorate for Communal Services of the People's Government. Also present were Comrades Nestor Munoz Labrada and Jose Lamazares Herrera, representing the province's Directorate of Customs and the Cuban Institute of Hydrography, respectively.

Shaped like a sac, the bay of Perla del Sur is approximately 21 km long by from 2 to 4 km wide. It connects with the open sea through a narrow channel about 3 km long and varying in width from 250 to 400 meters. The average depth of this channel is about 30 meters, whereas that of the bay is 9.7 meters. It has an estimated volume of water of 870 million cubic meters at the lowest average low-tide level. It receives sweet water from four tributaries. These are the Damuji and Salado Rivers, which drain into it from the north, and the Caonao and Laguna de Guanaroca Rivers, from the south.

Cienfuegos Bay supports fishing and luckily its level of pollution is not yet anything like that prevailing in Havana, but as of now vigorous steps must be taken. For that purpose, studies are being made of the waste water from

industrial installations which is discharged into it and of some waste products that can be utilized, such as caustic soda, vanadium, an element which is toxic for fauna but which can, nevertheless, be extracted, processed and supplied on the international market where this product commands a good price... a topic that was discussed during a symposium on the utilization of wastes that accumulate in the bay, which was held at the local campus of the University of Cienfuegos.

We have obviously gone into a fair amount of detail in this introduction to the round table, but we felt it necessary from the didactic point of view.

I have here the first question:

[Question] Due to the existing situation in Cienfuegos Bay, which affects its ecology, a committee has been created, -COPREMA, which has been charged with studying it and recommending solutions.. How was this job organized?

Tiel: A product of the province's impetuous economic, industrial and social development, environmental pollution in general constitutes a serious problem as concerns the stability of the ecosystems. In order to systematically combat pollution, COPREMA was created, which, with its two subcommittees, the Technical and Legislative Committees, is charged with assessing, identifying and describing the sources of pollution and their negative effect on the areas they affect.

Without waiting for the completion of the lengthy periods of investigation which are in some cases indispensable, COPREMA has tackled different problems relating to the general problem of pollution by dealing with them directly, ranking them at the level of the provinces.

In this struggle and with the advice and guidance of the party, the committee maintains continuous vigilance and thorough, systematic control, demanding constant attention and greater preventive rigor on the part of each polluting agency.

[Question] How have you controlled the dumping of hydrocarbons into the bay by ships?

Rodriguez Cala: The dumping of hydrocarbons by ships has been one of the greatest sources of pollution of our bay. Various measures have been adopted to control these dumpings, among them cooperation with the agencies that are permanently in the port, like the Harbormaster's Office, the Customs Office, the Maritime Safety Office, etc., thus creating a warning center so that, when a violation is observed, a report is transmitted to the courts and in this way the guilty parties are prosecuted.

Also, by way of prevention, the captains of ships arriving in port are presented with instructions informing them about the measures that will be applied to those who pollute our territorial and economic waters.

Other future preventive measures will be the utilization of hydrocarbon retention barriers that will be placed around the ships to control even more any dumping of liquids or solids into the waters of the bay. A system for sealing off the bilges of ships is also being prepared to keep them from dumping their garbage at night without being detected by our administrative authorities.

Ledesma: In the bay we maintain what is in practice an observation system by means of naval patrols we conduct daily, day and night, around those anchorages and chief industrial centers along the coast which are possible sources of pollution. When we spot something, we report it to the appropriate authorities for the purpose of prosecuting the violators. This has provided us with good results, especially since we have been working on this committee.

[Question] The bay is threatened by pollutants from industrial plants, some of them on the coast. How do you expect to eliminate this danger?

Irene: The approach used to eliminate the danger of pollution will be implemented by means of systematic inspections of the polluting sources which will involve advising them of and requiring them to comply with hygiene and health standards. Later, they will within COPREMA discuss and analyze the problems these enterprises pose in order to find suitable solutions that will guarantee environmental protection. Our working approach above all includes application of health and hygiene laws now in effect.

[Question] There are two ecosystems, the Cienaga de Zapata and the Laguna de Guanaroca respectively, that are affected by pollutants from different sources. What results do the studies on these show?

Otero Molina: The Laguna de Guanaroca constitutes a natural breeding ground for oysters and clams and at the same time it is an ideal location for pink flamingos. To find out about the physical and chemical characteristics of its waters, COPREMA engaged in cooperative ventures with various national research institutes. It also analyzed the direction of the sea currents in that part of the bay to discover the influence of liquid wastes from the Pepito Tey Sugar Mill which are carried by the waters of the Caonao River to Cienfuegos Bay and which, once they reach it, get into the lagoon, causing certain imbalances in it.

At the present time the provincial MINAZ [Ministry of the Sugar Industry] administration has taken the first steps toward the construction of a treatment plant capable of resolving the sugar industry's liquid waste problems.

On the other hand, the Cienaga de Zapata is an ecosystem which COPREMA has not so far studied. We don't know what changes may occur if it is brought in as a recipient of waste products from the Torula Yeast Factory, but just as in the preceding case MINAZ is already planning the construction of a treatment plant and will also initiate studies to determine whether the treated effluent may have other uses, thus freeing the Cienaga de Zapata from any foreign and unnatural incorporation [into the utilization of bay waters].

[Question] Are there plans for the construction of a new sewage system in the immediate future that will control the flow of untreated sewage to the Cienfuegos coast?

Suerias: We have a master plan for the new Cienfuegos sewage system. In it the construction of a pumping station designed to expedite human waste to treatment systems removed from the city is under consideration. The plan also provides for the construction of a treatment plant that will meet the requirements of these needs, although it is possible that there may be temporary solutions due to the urgent need for getting the new sewage system into operation.

[Question] There are three underwater oil pipelines in the bay which have in past years developed leaks that resulted in pollution. What measures does COPREMA have in mind to see to it that this does not repeat itself?

Rodriguez Cala: The three oil pipelines that we have in the bay are the ICP [Cuban Petroleum Institute], Fertilizer Plant and O'Bourke Thermoelectric Plant lines. Each one is 1,200 meters long and their chief difficulties are attributable to the periods during which they were built. To avoid future problems, COPREMA has prescribed several measures which will guarantee that the bay is not polluted by hydrocarbons carried by these oil pipelines. Among these is a system of periodic tests every 6 months which will determine the operational pressure capacity of each of them, thus avoiding and checking on any kind of spill like those that have occurred on several occasions in the past.

[Question] What measures are being planned to see to it that waste treatment plants that will prevent pollution of our seas and rivers are included in new industrial and public sector investments?

Alujas: Our agency, the Physical Planning Directorate, does not approve of the location of small industrial or public sector plants in which the waste products resulting from their activities are not treated according to established standards. An example of this is the INTUR [National Tourist Institute] cleaning plant, located in the vicinity of the city, which has not been permitted to open until it solves the problem of the treatment of its waste products.

[Question] There are landfall areas in the bay that are situated where they come into contact with floating pollutants. Is avoidance of this situation which is potentially dangerous to animal life being taken into consideration?

Lazaro Cortes: This question is under consideration in COPREMA, precisely through the action of our agency, which is the Provincial Subdirectorate of the National Institute for Veterinary Medicine.

As far as we are concerned, there are two elements of danger involved: first, motor ships anchored in port, and, second, the waste these motor ships dump at sea, which may enter the bay, that is, return to landfall points.

To give you an idea of the danger incurred by this waste, there is the fact that 44 motor ships that came from countries afflicted with toxic diseases arrived in our port in May. Our inspectors make daily inspections of all motor ships, chiefly of the waste from their kitchens and refrigerators, which contain meat, checking on and penalizing any violation.

[Question] How does the Provincial Controller's Office participate in the execution of measures designed to prevent and eliminate the pollution of bay waters?

Orlando Martin: The Controller's Office has participated in COPREMA meetings since the latter was founded and since then we have backed the measures adopted by those agencies specializing in the protection of the environment and the campaign to prevent or lessen the degree of pollution of the waters of our beautiful bay.

To that end, together with the administrations of the enterprises that produce polluting waste materials we have analyzed the preventive measures that should be adopted and to do so we have made use of the information those agencies specializing in that domain provide us with.

Another matter on which we have lent the committee our support is that of facilitating lawsuits that are presented, like those that are brought against foreign ships which, if they do not exercise diligence, create more problems than those we resolve because of the pollution they may cause. Strict vigilance over these ships is maintained and some of them that have been brought to court have had bonds of up to 10,000 pesos imposed on them before they can leave.

[Question] What has been done to protect the rest of the province's seas and rivers?

Delgado Astorquiza: Our work has not been limited solely to the bay. Recently our comrades from the Ministry of Public Health provided us with a report on pollution of the waters of the artificial lake at Aviles Dam caused by some herds of cows in the municipality of Cumanayagua. We discussed the matter with the Agriculture Directorate and they are already adopting a number of measures to resolve the situation.

[Question] Can you tell us about some cases against offenders or violators of the laws now in effect that have been brought before the courts?

Orlando Martin: Several state agencies have been brought before the courts for spilling oil into the bay and also administrators of workshops and service centers for spilling fuels.

Also actions have been brought involving supervision over the legality of those enterprises most responsible for polluting Cienfuegos and the rest of the province, like the fishing combine, the grain combine, the glucose plant, the hog farm and the INTUR laundry, among others.

[Question] What information can you offer us on the basis of the watchword that governs the work of the committee, that is, to preserve, maintain and reclaim?

Tiel: From its inception, COPREMA has directed its activities to prevent new negative effects on recipient bodies and substances and to thus maintain a healthy environment. To these ends, it has seen to it that every new installation, be it engaged in production of the public sector, has a suitable treatment plant.

We have inherited one problem from capitalism, since the factories built before the revolutionary victory do not have waste treatment plants.

In complying with the watchword of /preserving, maintaining and reclaiming/ [in boldface] the environment, COPREMA is affirming the directives of our party and government, and is helping our society to have a healthy environment in which we can realize a creative effort, complying with the health and hygiene requirements set forth in the laws now in effect.

Our opinion: We believe that each and every one of the opinions voiced in the course of these deliberations has been so exhaustive in breadth and depth that we consider any additional comment to be needless. We would merely add that this broadens the information horizons which we systematically attempt to provide with regard to a topic of such current biological and socioeconomic interest to the entire nation.

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CSO: 5000/2161

REFORESTATION OF SIERRA MAESTRA DESCRIBED

Havana VERDE OLIVO in Spanish 26 Aug 82, No 34 pp 40-43

[Article by Luis Lopez]

[Text] The highways that today skillfully elude the lofty heights have sprung into being from those trails along which animals could only with great difficulty move at a slow pace and which man made into roads wielding his machete through the dense bush, going from here to there countless times. From a distance it seems as though the white strip of land is embracing the hills like a gigantic serpent that is trying to throttle its prey.

What was once the highest massif in Cuba, the impregnable Sierra Maestra, now displays a new face that is day by day being transformed to improve the living conditions of the farmers who live in it, snatching from the ground those fruits that could grow only in places like these.

But not everything that man has accomplished in these places, whose natural beauty is worth admiring, corresponds to the notion of achieving better living or working conditions. As we penetrate them, we notice that the great forests thin out; no doubt there has been an ecological and geographical change, where the rivers have opened new channels and new heights have been created due to erosion caused by the rains. There are also expanses of land that lack a layer of vegetation.

The indiscriminate cutting down of forests that began centuries ago is being compensated for. Once again, nature has taught us how much it has to offer if only we know how to make use of it for ourselves, or how much we can lose if we arbitrarily break its laws.

An Appeal to a Generation

The gigantic revolutionary project of reforestation, as well as the care and maintenance of our forests, relies on the contribution of young people throughout the country, some of them on a temporary basis and others permanently, like those who make up the UJC [Union of Young Communists] Unit for the Reforestation of the Sierra Maestra which has been working since last April.

This youth force is fundamentally provided by three provinces: Santiago de Cuba, Guantanamo and Granma. In this last-named province the objective of the project is to reforest about 10,500 caballerias [1 caballeria = 33.2 acres] with over 10 species of trees: casuarina, bijaroga, majagua, yaru, pine and others, including some that are becoming extinct.

To complete this task by the year 2000, they will have to plant at the rate of 15 million trees a year, which is tantamount to saying that thousands of workers will be needed in the mountains in addition to those who may be mobilized for short periods of time.

The province of Granma has pledged itself to plant 22 million trees during this 5-year period, which is why it at present has nurseries with some 7 million plants. Over 4.5 million of these should be planted this year.

The first secretary of the UJC in Granma, Comrade Maximo Gomez Cabrera, said that this UJC shock mission was proposed at the Provincial Assembly's balance-sheet meeting and then picked up at the Fourth UJC Congress as an activity for all young Cubans.

"The first thing we did when we started our job," he said, "was to create the unit with permanent staff who work in the areas to be reforested according to the studies that have been made. So far we have about 400 of the 800 comrades who will constitute these forces when material conditions permit.

"The contribution of our young people will not only be made in this way. Those UJC rank-and-file organizations at production centers have been assigned areas that they have to reforest, whereby we will succeed in planting over 250,000 trees this year. We are, furthermore, planning gigantic mobilizations to invade the mountains. In these cases our comrades will live in the forests under natural conditions.

"And lastly," Gomez added, "we will receive the contribution students make during their vacations, all of which will enable the UJC to contribute to the salvation of one of our most beloved historical sites and to increasing the timber resources so necessary to the economy."

Amidst Foliage and Mountains

After spending quite some time climbing steep hills and jumping across the same river some 10 times, we reached one of the forest enterprise camps where a UJC unit has been stationed since last 27 May.

The camp is known as Las Comadres and is located at Vega Grande right in the middle of the Sierra Maestra. Nevertheless, the living conditions the forest workers and members of the unit enjoy there are magnificent: a good mess hall that can be converted into a recreation area, television, comfortable dormitories and everything needed to lead a normal life.

Very close by is the nursery in which they have planted some 400,000 trees of different varieties, including majagua and ipill-ipill. One of the activities

the young people engage in is the care of the nursery in terms of cleaning and maintenance.

Francisco Sangil Vicente belongs to the group of youths who take care of this important task, which group he joined after completing his general military service.

"I went into military service in a TRT [expansion unknown] unit in Havana. When I returned home, I heard about the activities of the unit and, since I knew of the importance of reforestation because I — you might say — was born in the Sierra, I joined up. I've been with it for a short time but I've blazed trails, planted pines, weeded... well, I've done everything there is to do here.

"The work," he said, "moves along well, although we do have some difficulties meeting the quotas that have been set because it is hard to do so. Nights we play dominoes or watch television until we fall asleep. In this manner we spend 25 days and the other 5 at home on passes."

Under some trees we saw a group of comrades cutting the leaves off plants that would be planted during the next few days. They explained to us that this was done to reduce the foliage and prevent more transpiration than the roots can stand during the first days following planting. "It's more or less to maintain a balance between the nourishment that the recently planted roots provide the seedling with and the transpiration of the leaves, in addition to keeping the tree from twisting its trunk due to the weight of the leaves. Do you understand why now?" said Santos Cruzata without neglecting his work for even an instant.

The youth's control over the shears is extraordinary. The hand that supports the plants turns from one side to the other while with the other hand he almost instinctively directs the shears toward the leaves.

Like his friend Francisco, Cruzata recently completed his active military service. "I became a member of the UJC in the FAR [Revolutionary Armed Forces]. Those two-and-a-half years meant a lot to me. I learned to handle the equipment, to work in an organized way, to be disciplined and respectful; in short, I think I shaped my behavior."

When Cruzata joined the UJC municipality, his comrades spoke to him of the unit that was to carry out the reforestation project. He then heard about the pledge the young people had made to Fidel "and I joined up for 3 months, although I think I'll stay on longer. There's a lot of work to do and we must set an example. If we pledge our word to Fidel, we have to keep it."

The work is not easy: weeding the soil, building terraces to plant the trees, planting and maintaining them, keeping watch over the development of the nursery; all this done on the slopes of these wild mountains is not for those who are faint of heart. More than strong arms they need to have strong convictions and an awareness of the importance of their work.

The fruit of their labor can already be seen in some areas. The trees tower in search of the sun to then sprout their bright green foliage and provide shade. In just a few years hundreds of caballerias will have been planted and the trees will grow in the Sierra Maestra as an example of what thousands of young people were capable of doing. And then, when talking about the great national park, it will be inevitable for people to mention the great job that this generation tackled with pride and was capable of protecting the stage on which our independence was finally chronicled.

11,466

CSO: 5000/2161

GUATEMALA

BRIEFS

REFORESTATION PROJECTS UNDER WAY--A total of 6,675,000 trees out of a total of 18 projects has been planted in 3,130,035 hectares throughout the national territory. According to a report of agricultural engineer Jose Guillermo Pacheco, administrator of the National Forestry Service (INAFOR), that institution has been giving incentives for and promoting reforestation in compliance with Administrative Resolution 23-75, of the ministries of Agriculture and Public Finance, which provides for article 41 of decree 56-74 of the Congress of the Republic, the Forestry Law. It is hoped that more than 2,500,000 trees will be planted through this plan, in projects to be distributed in all departments. The chief objective is to provide participation by private enterprise. Ordinary or juridical persons, residing or domiciled in the country, may deduct up to 50 percent of the tax on profits for expenditures and maintenance of reforestation plantations undertaken in forestry areas covering no less than 5 hectares. [Text] [Guatemala DIARIO DE CENTRO AMERICA in Spanish 5 Aug 82 p 8] 8255

REFORESTATION INCENTIVE--In announcing the economic incentives that the Forestry Law grants to private enterprise that undertakes national reforestation, engineer Jose Guillermo Pacheco, administrator of the National Forestry Institute, said that one of the chief goals of the present government is reforestation of the country, in order to avoid damages from drought. Among the benefits that the law contemplates is the inclusion in particular of an exoneration of importation taxes on equipment and material to be used in the planting and management of forested or reforested areas. Also, there will be no tax during the first 10 years on income from production resulting from artificially created forests. In addition, there will be no tax during the first 5 years on production in pulp mills that may be established in the country. Pacheco concluded that these measures that are contained in the Forestry Law have the following twofold objectives: to speed up the national reforestation campaign and to strengthen the economy of the private sector that becomes active in forestation for commercial purposes. The Forestry Law is part of Administrative Resolution 22-75, which regulates Article 41 of Decree 58-74. This provides reforestation incentives and support, investment, and maintenance. [Text] [Guatemala EL IMPARCIAL in Spanish 28 Aug 82 pp 1,7] 8255

NEW BEACH EROSION STUDY PLANNED FOR MONTEGO BAY AREA

Kingston THE DAILY GLEANER in English 22 Sep 82 p 15

[Text]

Field research aimed at ending the instability of beaches in the Montego Bay area is to begin this week. The examination will be conducted by the Natural Resources Conservation Department.

According to a news release, the area identified extends along the coastal stretch from the Sangster International Airport to the deep-water pier section of Montego Freeport. The research will include all historical reconstruction of the area, and computer modelling to determine wave refraction patterns, leading to a prediction of induced longshore currents," the release said.

This exercise follows earlier investigations carried out by the Department into the disappearance of Sunset Beach in Montego Bay. Apart from the oceanographic aspect, the survey will be studying rock features and sand composition, distribution, origin

and movement. The latter may help in locating the source of the sand in order to determine the possibility of rebuilding the beach.

Preliminary investigations by the Department indicated that the loss of beach in the area could have been due to a shift in the wind direction from an east-north-easterly direction to an easterly direction. This, the Department said, could cause severe erosion.

Another factor which could have contributed to the disappearance of the beach was the fact that there had been a constant decrease in the amount of sea grass, a beach stabilizer, in the area.

Over the last 100 years, the coastline retreated by 80 to 90 feet and this action had accelerated due to Man's interference, the news release said.

CSO: 5000/7501

WATER NEEDS OF GROWING POPULATION, DEVELOPMENT, POSE URGENT PROBLEMS

Algiers EL DJEICH in French No 231, Aug 82 pp 10-14

[Article by Abderrachid Khelfi: "Water in the West: Eternally Immense Needs"]

[Text] Summer is here and with it, to the beat of an old refrain, the question which too frequently puts the people to a difficult test: water, so obviously vital that there is almost no further need of any image or labels.

The interruptions in the supply and the rationing continue, along with the rude awakening in the middle of the night to go grumbling after whatever water is needed for daily survival.

But is anyone aware of what that ever-so-routine gesture of the turning on of a faucet means in terms of advance planning, follow-up and maintenance? Dozens of kilometers of pipes and canals, countless pumping stations, treatment or purification (depending on the case) facilities, enormous dams, hill reservoirs, underground water, river water and men and money as well.

And yet, nothing seems to work. The question in some of the country's governorates is crucial. For example, ask the people of Tiaret, whose children struggle along with jerrycans, bottles and any other container they can find, what they think of the water problem. Tiaret is perhaps the best possible indicator of how far behind we are in terms of our water supply.

Above all, one should not think that the situation is at a standstill. Definite, praiseworthy efforts are now being made to improve things. We are told at the governorate hydraulics directorate (DHW) that the systems are still operating with the very old infrastructures, which (because of leaks and breaks in pipes) worsens the shortage in cities like Tissemsilt, Theniet-El-Had and Tiaret. It is now that the impact of all the delays is felt. Things will perhaps change with the project to bring water from 100 kilometers away, from the Ben Khedda Dam, and with the 27 wells aimed at helping urban centers.

The most urgent needs in Tiaret have meant that little has been done in the way of actions to mobilize resources -- that is, operations to survey water potential, followed by exploitation of such potential for domestic, agricultural and industrial needs.

Elsewhere, the situation is scarcely better. Things in the major metropolitan center of Oran are not reassuring. The meager underground resources make it necessary to go to the Mascara and Tlemcen dams. Drilling (02) is underway but the flow will not exceed 80 cubic meters. The shortage remains. Entire districts will remain undersupplied. We are told that the Bredeah underground water could furnish up to 50,000 cubic meters a day, but the salinity is very high: 3 to 4 grams per liter. Of all the water consumed, only 20 percent is from local sources, which shows the effort remaining to be made.

The situation is quite different in Tlemcen. Benefiting from abundant rainfall and the existence of dams (as well as the construction underway of the Sidi Abdelli Dam, with a minimum capacity of 55 million cubic meters), the rate of satisfaction is obviously higher. It is not by accident that Tlemcen was and is still considered to be the reservoir of the west.

The national objective is to guarantee a supply of 150 liters per person per day. This minimum is generally exceeded in most populated areas in the governorate of Tlemcen, with the exception of Nedroma and its region. The absence of any adequate resource at that level will be resolved, we are told, by bringing in water from other sites. However, the situation would be further aggravated with the establishment of a textile unit which, as is well-known, uses large quantities of water.

The director of hydraulics also emphasizes the stimulus provided by the communal development plans (PCS). No fewer than 400 operations are included in these plans. However, serious limitations could hinder the program, such as inadequate means of construction and delivery (especially steel pipes, not a single one of which was received in 1982), and finally, the unavailability of electromechanical equipment. The lack of pumping equipment often compromises drilling efforts.

In Saida and Laghouat, Mascara or elsewhere, water problems are experienced with the same intensity and sometimes the same alarm. This is totally understandable when one knows all the implications of a water shortage.

Sanitation: A Tangled Situation

Here, things are not much different from the distribution area. They are even more serious. The sudden and colossal urban growth made sanitation systems nearly obsolete. Action by public authorities was uneven, as if they could solve the problem anyway.

Most sanitation systems were designed for populations lower in density than what we now have in the large cities in the west. We also now see that more sewage pipes should have been put in or that they should simply be replaced, especially since channeling waste waters ("organic") is not everything. There is also the question of dumping.

Where is such water to be dumped? For the coastal cities like Oran, the problem is not posed in the same way. The water is pumped into the sea.

The question is thornier in cities that do not enjoy the advantage of the sea (an advantage that is totally relative in view of pollution problems). It is therefore necessary to organize and work in such a way that the dumping of waste waters is not inconvenient, which is unfortunately not always the case. In Saida, for example, the situation is somewhat alarming. The underground water supplying the population is under the city itself and with the public waste, the risk exists of contaminating that water. Measures to protect the underground water remain to be taken.

The situation in Laghouat with respect to sanitation must be improved. The sewers empty at the very gates to the old town, forming a vast and very real swamp, with the stench, microbes and all the rest.

Sanitation in Laghouat is not the problem of the city alone, but of the entire governorate. The governorate hydraulic director (DHW) told us that these are special cases. The overlapping of urban centers and agricultural areas, added to the great lengths involved, means that sanitation burdens are too heavy. For the time being, things are following their (tortured) path.

Elsewhere -- in Tiaret, to be precise -- the deterioration of the system required total repair. One has to see the streets of the city, which resemble tracks more than roadways worthy of the name.

Furthermore, waste water is dumped in the Mina and Abed wadis, which in the long run constitutes a threat to the wadis and to the underground water, especially since the only purification station that exists is not in operation.

In Chieff, an experiment is being tried for sanitation. Over 100 kilometers of pipes were built after the earthquake, half of plastic. To date, the experiment has proved successful. In Medea, most of the towns have sanitation systems, while action is being taken to build systems in every settlement with over 50 homes.

The black spot, with regard to sanitation systems, in most governorates visited is undeniably the purification stations. First of all, very few exist and those that exist are generally out of service as a result of inadequate management and the lack of spare parts.

This is the case in Saida, where the treatment station has not operated since 1975 for technical reasons and management problems. The same situation reigns in Tiaret. The same insufficiencies exist everywhere, preventing a final and technically feasible response to the matter of the treatment stations.

Irrigation: Prime Interest

The importance of a dense irrigation system for our country escapes no one. The future of our agriculture and our economic stability depends on it to a great extent. But what is happening in the field?

Given their current volume, mobilized water resources are not adequate to serve all irrigable land. Priority is therefore given to relatively limited areas.

The possibility nevertheless exists of creating new areas when there are improvements in capacities mobilized (dam construction, hill reservoirs, new drainage, and so on).

Many operations have been launched for the rehabilitation or establishment of areas. A project is underway at Mascar, for example, concerning the El Habra perimeter and consisting of total restructuring of the area, activation of the Ouizert Dam construction and reforestation of the Beni Chougrane Mountains (in order to halt erosion and silting).

The Ghriss area includes at least 50,000 hectares of good land, but only 14,000 are actually being worked. There has definitely been remarkable expansion of small waterworks in the perimeter, but "we must have a broader vision." The current requirement seems to be saving what exists first of all and then developing.

One special aspect should be pointed out with respect to the Habra area. The 22,000 hectares are dwindling because of inadequate facilities but also and above all because of the high salt content of the water: from 3 to 5 grams a liter. To solve the problem, we have to "drain and leach," it is said. At Mohammadia, 781 kilometers of underground drainage are planned (with a perforated plastic drain system so that the salt will collect). Open drainage systems are also being set up over a total distance of 153 kilometers. This procedure would be clearly less costly -- and also less effective? -- than the former. It should be pointed out that this problem of the encroachment of salt could arise in more crucial terms in the future if effective actions are not taken. For the time being, it affects three governorates (Mascara, Oran and Mostaganem) and nearly 6,000 hectares.

Saida, with its 60,000 square kilometers of grazing areas, faces special problems. Large credits were set up to irrigate the northern area of the governorate. These are the Ain Skhoua (2,500 hectares with sprinkling), Tarmart (900 hectares) and Tifrit (300 hectares) areas. A project is also being planned for 2,500 to 3,000 hectares at Brezina.

Regarding grazing, the governorate's prime vocation, the infrastructures set up are inadequate, mainly because of a poorly designed partitioning.

The wells drilled are not always in transhumance areas, nor are they always properly equipped. It is reported that over 2,000 windmills are needed. The latter, using the wind for energy, can be particularly effective in grazing zones. Many electric pump generators are also needed, but it is difficult to see how their operation is to be ensured in places so isolated that stationing a guard is out of the question.

However, a great deal needs to be said about the windmills. Some of those recently installed were made right in Algeria by the ONAMHYD [National Hydraulic Equipment Office] unit in Laghouat, but they present definite manufacturing defects, particularly in the pistons and the rotation system. The force of the wind blowing over the steppe is sometimes so great that the windmill mechanism is thrown out of gear or ruined.

Workshops are reportedly scheduled at the central level to determine what technical modifications should be made in the windmills. This would definitely be of benefit since in many places, only windmills would be suitable.

Large Dams: Major Asset

In his speech before the National Hydraulics Personnel Seminar, Minister Brahim Brahimi said that it is urgent "to complete the projects in order to meet and respond to water needs which are so crucial and which are steadily growing due to the population increase and the urban concentration of the Algerian population, on the one hand, and to the accelerated rate of national development, particularly in agriculture and industry."

The big dams are one of the tools helping to reach that objective, but let us first of all examine the condition of some existing dams. Partially put into operation in 1943, the Ghrib Dam (governorate of Chleff) has a theoretical capacity of 280 million cubic meters of water, but it has experienced serious problems with silting, representing up to 130 million cubic meters.

This means the same volume of capacity is lost. In addition to areas on the upper, middle and lower regions of Cheliff, the Ghrib should start this summer to supply Medea and Berrouaghia with 12,000 cubic meters of drinking water a day.

With a smaller capacity, the El Meffrouch Dam (Tlemcen) has little silting, since its slopes are not particularly clayey. This is not the case of the Bou-Hanifia Dam, which has silting of 20 million cubic meters out of a total capacity of 72 million, or the Fergoug Dam (both in Mascara).

Silting is actually the main problem of existing dams. There are others, such as the shortage of technicians and management and maintenance, but they have less impact. It would appear that there is no real solution to the problem of silting.

The best and surest solution is one preceding construction of the dam itself, with reforestation of hillsides in order to hold the ground in place. Otherwise, when there is silting -- and there necessarily is -- the solution consists of systematic dredging of silt deposited in the dam basin. Here also, there is a major drawback. The procedure is extremely costly and would require, for the extraction of 1 cubic meter of silt, 5 cubic meters of water.

Another solution consists of raising the dikes in order to increase reservoir capacity. However, in no way is this a lasting, definitive solution to the problem of silting.

Because the dams are of prime, strategic importance, a decision was made by central departments to increase their number. Sixteen dams are under construction throughout the territory, while four more will be launched during the year and calls for bids are being issued for another eight. All these operations would make it possible for the country to double its storage capacity.

Among dams under construction, we had the opportunity to visit the Sidi Abdelli in Tlemcen. With its 110 million-cubic-meter capacity -- 55 million guaranteed 9 years out of 10 -- the dam will bring about definite improvements in the region.

Although the destination of the water is not yet well-known, we shall build and see later. The risk is seeing the dam underused when, upon its (theoretical) conclusion in May 1983, its assignment to a given purpose is determined. It would be more logical and more profitable to define the use of the dam's water now.

This same question of the use of the water could arise in the long run with respect to the El Fakia Dam at Mascara.

The dam suffered some misfortunes. Begun in 1974, work was suspended for 3 years due to the failure of an Algerian-Swedish partnership. Work was then resumed in June 1979 (an Algerian-Romanian partnership) and should be completed in April 1984. The dam will have a capacity of 100 million cubic meters.

Its function, as originally planned, would be to complement the waters of the Fergoug and Bou-Hanifia in order to compensate for water taken by Oran and Arzew for industrial purposes. Its next function would be irrigation of the entire El Habra area, and that is perhaps not all.

It should also be noted that this dam offers the particular aspect of functioning as a school. For Algeria, it involves 11 engineers, 5 upper-level technicians and 74 foremen. The purpose is to train dam personnel able to direct and oversee major projects.

Construction of the major dams is accompanied by the policy of hill reservoirs. The latter, built along the same principle as the dams, are dikes that can be constructed easily following the relief of the countryside. They are not costly, are easy and fast to build and can make a great contribution to the mobilization of surface waters, such large quantities of which are wasted in our country. The fact remains that the very notion of hill reservoir has not always been unanimously received by operators. Some view them as minidams with a capacity of 3.4 or 5 million cubic meters, while others view them only as large dikes with a half million cubic meters or less capacity. Obviously, the different procedures require different means.

Industrial Water and Polluted Water

Increasing the number of industrial facilities throughout the country cannot help but result in much greater water needs. Some plants require enormous quantities.

In Saida, for example, the industrial zone consumes as much as the city, with its 42,000 inhabitants. Some 20 to 25 percent of Oran's total capacities is used by the industrial sector. In Tlemcen, there is excessive use, while in Tiaret, where all problems are known, there is a proposal to supply the industrial zone from the Ben Khedda Dam, with a total flow of 220 liters per second.

However, independently of the efforts made to guarantee enough water for industrial activities, one must point out the risks of pollution detected here and there.

At the Bou-Hanifia and Fergoug dams, stored water is often covered with an oil film whose origin is reportedly the SONIC [National Cellulose Industries Company] complex in Saida. It would appear that this is not certain, however, and a committee has been set up in Saida to investigate and see which plants are guilty of the pollution, especially since the oil spot in question contains phenol and is particularly toxic.

While there may be doubt in this case, there is none about the industrial pollution when one sees the waste from the SONIC complex in Mostaganem. A wide, spongy band with a fetid, noxious odor, runs along the coast for dozens of kilometers. It cannot fail to have an effect.

In Tlemcen also, dead fish were found on the shore three times. Analyses are underway.

The question here is the problem of recycling industrial water, which necessarily goes through the treatment centers. But we observed that here again, things are so bad that it is urgent to impose antipollution measures. The treatment centers, where they exist, are generally out of service. The machinery has rusted away for so many years that no one cares any more. Perhaps it is thought that its operation and maintenance is but a futile burden.

It is mainly a matter of becoming aware of problems, apparently benign, but the cost of which will unfailingly be borne in the future.

For the time being, the absence of any specialized structure capable of imposing antipollution measures means that indifference reigns.

Management and Prices

These crucial problems of the availability of resources and their distribution are joined by one major question: management and prices.

Veritable confusion characterizes management. Some management is the province of the central authorities, the governorate organs and the APC. Nor is coordination always the style. For example, the DHW may set up a treatment station which, once finished, is turned over to the APC. The latter is clearly to manage it, but as soon as there are any problems -- there always are and many -- everything falls back on the DHW. In addition, there are technical and skill problems, problems with caretaking, the inability to obtain chemical products, sometimes a failure to respect all operations needed for proper water treatment.

In some governorates, the idea of a specialized governorate company equipped with all the necessary resources is making headway. One already exists in Algiers: SEDAL [expansion unknown]. They must become widespread because the interest of everyone is at stake.

The price of water is also a serious problem. In many governorates, the price is a lump payment: One pays an average of 80 Algerian dinars a year and uses (or wastes) as much water as one wishes!

Such a solution does not encourage wise use of water in terms of needs; far from it. Why should one repair a leaky faucet or pipe when it changes nothing in terms of money?

This formula is also applied to small industrial units, which is practically nonsense under the country's current conditions, with water resources being so precious.

Should individual meters then be introduced and charge for cubic meters used? This idea is also making headway. It will have the advantage of encouraging more rational use of water.

These are all elements and details confirming the scope of work to be done. Dams must be built, hillside reservoirs constructed, drainage systems, water treatment stations must be set up, management made more sound, a price policy worked out. "The scope of these projects," the minister of hydraulics said, "is easily perceived. We know that the political leadership has devoted no less than 3 trillion dinars to relaunching the hydraulic sector."

This interest is all the more justified because things in our country change so quickly that one often is certain, with the launching of a project -- no matter how grandiose it may be -- that it will be out of date upon completion. This is one more reason always to be on top of things, ready to make up for a delay of several years and then set up a water system that will meet our needs fully and for a long time to come.

Fergoug Dam Dredger

Dozens and dozens of giant barrels, metal platforms are lying on the ground, out in the open, on the lower side of the Fergoug Dam in Mascara.

Totally rusted, these dredging machines -- because that is what they are -- have been there since 1976. How? Why? No one knows. They were brought and that was the end of it. Alongside these dozens of barrels and floaters are three enormous dredging engines, covered up haphazardly. It is little use to take care of them; they will end up rotting away. Naturally, there have been reports, without any follow-up. Officials from national companies have also come, inspected, taken notes and left. With no results. All the questions have gone unanswered since 1976.

Water and Watermelons

Water is scarce in many governorates in the west. Nature was rather stingy this year.

Nevertheless, methodical, organized rationing can help us to get through the summer without too much damage and that is what was done. Then there are the watermelon growers.

The watermelons definitely pose a serious problem, one that is getting worse. In Mascara, Tiaret, Mostaganem and Chleff, growers take water from the different wadis by using powerful electric pumps and irrigate their fields.

Watermelons take enormous amounts of water, which means that water normally destined for domestic purposes is pumped out and diverted. Second, such procedures strain irrigation facilities of known and regulated farms and are illegal.

Often the watermelons grow on land rented for 7,000 dinars a hectare, which is contrary to the laws of the agrarian revolution, but since watermelons grown on a single hectare bring in at least 15 million old dinars, no one hesitates to break those laws. Naturally, the growers know all the tricks: The real owner uses a fake name in all purchases and transactions.

Several meetings have taken place in the different governorates. Decisions have been made, but without any conclusive results, lacking a law deciding the question once and for all.

11,464

CSO: 5000/4600

FARMERS SELL STOCK AS DROUGHT CRISIS TIGHTENS GRIP

Johannesburg THE CITIZEN in English 28 Sep 82 p 3

[Text]

DROUGHT conditions in large parts of the summer rainfall regions of South Africa are becoming critical.

In some places dams, rivers and boreholes are drying up.

Reports say farmers in the Northern Transvaal bushveld have had to begin selling breeding stock.

Mr Pieter Potgieter, assistant general manager (products) of the Northern Transvaal Agricultural Co-operative, said farmers were having problems with water supplies from the Limpopo River.

Game is dying off in the Ellisras area and serious losses are expected if it does not rain in the next two weeks.

Deteriorating

The situation in the north-western Cape is also deteriorating, forcing farmers to cut their herds drastically after losing hundreds of animals.

There have been gale force winds in the area over the past two months. Parched bushes have been torn from the ground or

buried in the sand. The number of sheep has been reduced by a further 30 percent.

No more grazing is available at the Spitskop Nature Reserve, near Upington and about 300 head of game have to be fed daily.

Cattle farmers in Natal who were providing fodder for their animals in the middle of last month are battling. Many have had to reduce herds.

Near Magudu the grazing problem has been aggravated by a termite plague. On some farms 25 percent of grazing has been rendered unusable by termites.

Cane

The chairman of the South African Cane Growers' Association, Mr Ernie Morrison, says cane farmers are going through a critical period and production will decline drastically if it does not rain soon.

Cattle farmers in the northern homelands and Venda have trekked thousands of kilometres in sea-

rch of grazing. People living in the northern Transvaal have described the drought as the worst in more than 10 years.

The secretary of the Department of Agriculture in Bophuthatswana, Mr C M Seape, said the whole area was in the grip of a severe drought. There would be stock losses if it did not rain in the next seven to 10 days.

Nearly half the promising grain harvest in the Thaba'Nchu area had been lost because of the drought and if it did not rain soon the whole crop would be lost, he said.

The Deputy Director of Agriculture and Forestry in the Ciskei, Mr H Mafani, said the wheat and pea crops were being damaged by the lack of rain.

The worst affected areas were the northern parts of Ciskei. There had been stock losses in the Hewu, Zweledinga and Thornhill areas.

The drought problem in KwaZulu was discussed yesterday at Ulundi by KwaZulu departmental secretaries. Sapa.

BRIEFS

WATER CURBS--Durban.--The critical drought situation in the Mtubatuba area, Zululand, has led the local town board to enforce a complete ban on the use of sprinklers and hosepipes from yesterday. According to a spokesman of the town board, the dam supplying the town has dropped in its capacity to an all-time low. He said that the ban would remain in effect until further notice. Previously there was a partial ban on the use of hosepipes and sprinklers. They could only be used between 4 and 5 pm on Mondays, Wednesdays and Fridays. While several parts of Zululand are experiencing a crippling drought, an equally serious drought appears to have been partially broken in three East Griqualand districts, Matatiele, Cedarville and Kokstad. A violent thunderstorm erupted in the areas last night in which about five mm of rain fell in an hour. Farmers in the three districts say the thunderstorm has broken the drought and they now have the opportunity to plough and plant. The thunderstorm came after prayers for rain were said in several churches in the districts at the weekend. [Text] [Johannesburg THE CITIZEN in English 29 Sep 82 p 14]

NATAL DROUGHT WARNING--Transvaal holidaymakers, who intend going to Natal Parks Board facilities are warned that serious drought conditions exist at various resorts. A spokesman for Natal Parks Board said yesterday that the situation was particularly serious at St Lucia, Zululand. He warned holidaymakers to keep away from the St Lucia village where it is estimated that, unless rain falls, there is only enough water for three days consumption. He was particularly worried about sanitary conditions because of the drought at the village. The drought situation was also extremely critical at Vryheid in northern Natal. Water restrictions have been in force in the town for almost two years but the situation has not improved. According to a spokesman for the local municipality, dams supplying the town are at a very low ebb. In the last five or six months, only about 19.3 mm of rain has fallen in the area. [Text] [Johannesburg THE CITIZEN in English 2 Oct 82 p 8]

TRANSSVAAL FARMERS FACE RUIN--Farmers in the Transvaal are facing possible ruin if it does not rain soon, says the Department of the Environment. The worst affected areas are the northern and eastern Transvaal and Zululand. The Sabie River has dried up and water is being pumped from the Fanie Botha Dam along the bed of the Letaba River. If the citrus trees shed their blossoms early there is a chance the crop will be lost. In Nelspruit a spokesman for the Forestry Department, Mr P C Marwick said: "The drought is having a very bad effect. Trees are dying but at present it is not too widespread. "We have 40,000 hectares of trees in our area and they are feeling the effects." Mr Marwick went on to say that if it did rain it would have a dramatic effect and hopefully damage to the area would not be too severe. "The worst-affected trees in the area are the trees that are on north-easterly slopes as they are subjected to the sun and wind virtually all the time," said Mr Marwick. Dams throughout the Lowveld are at dangerously low levels and many rivers are down to a trickle. In some areas of the Lowveld prayer services for rain have been held in churches. In Natal, sugar milling may have to be halted and in Botswana the drought is regarded as a national disaster. [Text] [Johannesburg THE CITIZEN in English 2 Oct 82 p 3]

THOUSANDS ATTEND RAINDANCE CEREMONY AT NJELELE HILL

Paris AFRICA AFP in English No 2936, 28 Sep 82 p 26

[Text] Bulawayo, Zimbabwe, September 27--Thousands of Zimbabweans gathered at a hilltop shrine near this southwestern city at the weekend to ask tribal ancestors to end a scorching drought and also to halt renegade guerrilla violence in the region.

Among the estimated 9,000 people attending the two-day rain-dance and feast at Njelele hill, 70 kms (40 miles) from Bulawayo, was opposition political leader Joshua Nkomo.

The government of Prime Minister Robert Mugabe blames Mr Nkomo's ZAPU party for encouraging former guerrillas in a seven-month wave of attacks that have claimed more than 50 lives, but Mr Nkomo has condemned the renegades and says he is working for peace.

The ceremony at the Inkundla Yelitshe Lemvelo shrine was meant to remedy "a depressing drought and continuing bloodshed," the chairman of a committee which administers the shrine, Jacob Masuku, told the Bulawayo CHRONICLE newspaper.

"We decided to meet here and appeal to the ancestral spirits for help to end these problems," he was quoted as saying.

Rainfall Halved

Most areas of Western Zimbabwe have had less than half their normal rainfall this past rainy season (November to April), with precipitation dropping to as little as 193 millimeters (7.5 inches) in one place.

Now tribespeople are depending on food aid from the government to replace their failed crops, cattle are dying by the hundreds, and emergency water supplies are being arranged for rural folk whose wells are dry.

The problem of provisions has been exacerbated by tension between government security forces and tribespeople in some areas where the villagers are accused of harbouring the dissident guerrillas.

The government has said that it cannot give assistance to people working in league with its enemies.

The site of the weekend rain-dance is in the Matopos hills, considered a spiritually-important part of the region known as Matabeleland.

The keeper of the Njelele shrine, Stwanyana Ncube, said that before the coming of the white man at the end of the last century, a voice used to communicate there with the elders of the region's Ndebele people.

Now, he said, the "respectability and holiness" of the shrine had been restored so the ancestors could speak once more. (A.F.P.)

CSO: 5000/9

FARMERS GET WARNING OF END TO DROUGHT AID

Harare THE HERALD in English 23 Sep 82 p 1

[Article by Chemist Mafuba]

[Text] **DROUGHT** relief for farmers has been scrapped because the Government has been over-generous by giving them high producer prices, the Minister of Agriculture, Senator Denis Norman, said yesterday.

Senator Norman stunned over 500 delegates at the two-day congress of the Zimbabwe National Farmers' Union in Harare when he bluntly told them: "I do not think there will be any drought relief."

He was answering questions after his hour-long speech on Government plans to develop all aspects of the agricultural industry.

The previous policy of granting drought relief had been justified on the grounds of low producer prices, but this practice had been discontinued because of the sympathy the Government had shown to farmers by way of increasing producer prices for controlled crops and beef.

Farmers had to choose between the existing pricing structure or accepting a cut in the producer price so that the Government could revert to the drought relief system.

"We can always lower prices and put money aside so that in years of relative poverty we will have some funds to fall back on," he said. "But to me this is a negative attitude."

The industry which had suffered most from this year's drought was livestock.

Attempts had been made to get the cattle out, as it would have been too expensive to bring fodder into the drought-affected areas. But sadly a lot of people had failed to sell their cattle.

One of the reasons was that they saw livestock as the basic source of their wealth.

The current season had provided the best opportunity of destocking livestock to acceptable levels through selling to the

Cold Storage Commission, but since the response had been discouraging, nature would carry out this "major exercise" through cattle deaths.

However, several patterns were being tested for consideration by the Treasury to find the best method of helping cattle farmers restock.

To avoid reducing prices to pay for those farmers who "come short on crops because of drought", a

national drought investment scheme should be established to which the farmer and Government could make premium contributions.

Farmers could draw money from the scheme when drought hit them.

The idea had been on the cards for the past 12 years, but it had taken this year's crisis to make people take notice.

He assured people farming in Regions 4 and 5 — suited for ranching — that some form of relief would be given on humanitarian grounds this year to complement the free food they were receiving from the Government.

The most telling point he made in his wide ranging speech was that Zimbabwe could fail to be the breadbasket of SADCC unless effective steps were taken to harness water and form irrigation schemes.

The region's runaway population explosion would put a strain on Zimbabwe's agricultural production unless increased productivity was complemented by massive irrigation projects.

MSIPA CALLS ON MASSES TO HELP FIGHT DROUGHT

Harare THE HERALD in English 18 Sep 82 p 3

[Text] Matabeleland's provincial and district administration officials and council chairmen, together with local MPs, were yesterday summoned to an emergency meeting with the Minister of Water Resources and Development, Cde Cephas Msipa.

The meeting was called to review efforts to combat the drought which has seriously affected the province's rural community.

Grim-faced officials heard Cde Msipa announce a new Government plan that would involve local people in the digging of wells.

The minister noted that the mounting drought situation, which has so far cost the lives of countless cattle, could not be adequately tackled by the Government alone.

While the Government was concerned about the drought situation and all its attendant destructive effects on the lives of people, it simply did not have all the means and resources to tackle the problem alone.

What the Government was calling for now, the minister said, was a joint effort with the local people. "Government will provide materials and technical assistance, but the people must be mobilised to dig the wells," he said.

But in devising a strategy for combating drought, the delegates would first have to determine whether the death of cattle was caused by lack of water or grazing.

"If it is lack of water then my ministry is at the centre of this rescue operation we must embark on," Cde Msipa said.

'Worse To Come'

Earlier the minister warned that things would get worse before they got better.

Calling for realistic and practical suggestions from the delegates, Cde Msipa said the people must be involved in the digging of wells.

Cde Msipa noted that in places like Chibi the local people had enthusiastically assisted the water-supply programme by digging trenches so they could be supplied with water from a source over five kilometres away.

But at places like Ntabazinduna, the piped water supply programme had been stalled because the local people were not helping in the digging of trenches.

CSO: 5000/3

DIVERSIFY TO BEAT DROUGHT, URGES KANGAI

Harare THE SUNDAY MAIL in English 19 Sep 82 p 4

[Text]

PEOPLE in rural areas should be encouraged to diversify into handicrafts and other activities so that they are not totally dependent on the rains, the Minister of Labour and Social Services, Cde Kumbirai Kangai, said yesterday.

He told the annual meeting of Christian Care in Harare:

"I feel that people like yourselves can help our society by encouraging and organising these people, and orientating them to produce marketable goods, instead of just thinking of consumer goods, waiting for the rains, and if the rains don't come, running into trouble.

"This would also help prevent the movement to urban areas, and make people realise that even in rural areas there is a lot that can be done to earn them a liveable income."

Cde Kangai called on different churches in Zimbabwe to discuss national transformation.

"We would like all our churches to take some time to discuss the issue. What does it mean to say national transformation? Who is to be transformed? Is it only the povo, or is it the leadership, or is it the entire community?"

"We all have to be transformed in our own way. We have to examine the manner in which we have been operating. We have to examine the problems of our society and

see how we can change and become new people in a new society of Zimbabwe, he said.

There would be no need for unemployment in the country. "There will be no excuse for any person to be unemployed because Zimbabwe as a country has a lot of potential.

"What we really need is to transform ourselves so that we rechannel and reorientate our thinking."

The minister praised Christian Care for all its work, particularly with the rehabilitation of ex-combatants and convicts.

Although it was a people's Government, it needed such help and could not succeed in uplifting the living conditions of all the underprivileged by itself.

"This job is the responsibility of every Zimbabwean. We need voluntary workers who can take some hours to serve others and concern themselves with the plight of the masses of Zimbabwe who, through no fault of their own, have not had some of the opportunities that we ourselves have," he said.

FORESTRY COMMISSION TO ESTABLISH TREE NURSERIES

Harare THE HERALD in English 23 Sep 82 p 5

[Text]

THE Forestry Commission is to establish 66 tree nurseries throughout the country and a million trees will be made available for planting, the Minister of Natural Resources and Tourism, Cde Victoria Chitepo, said in the Assembly.

Answering questions during the Committee of Supply debate on her ministry's \$26 081 000 vote, Cde Chitepo said a big reafforestation project would be implemented during the three-year development plan.

Trees for planting would be made available in the communal areas, she said.

Mr Henry Elsworth (Independent, Midlands) asked what the Government was doing to curb the damage being done by squatters who were "hacking away at our forests".

The minister said it was not the Government which allowed people to go round cutting down trees indiscriminately.

However, the need for wood fuel had been aggravated by land hunger; people had become impatient waiting for the Government to find land to settle them on.

Therefore, they had tried to find homes for themselves and had done "a lot of damage to our natural vegetation".

Most of the tree cutting was due to the backlog in the resettlement

process. "If the resettlement scheme were carried out faster there would be less felling of trees," she said.

The rural people needed trees not only for building but also for fuel, she said, and therefore the Forestry Commission was carrying out research into what types of trees could be made available for replanting to provide suitable wood fuel in a short time.

Turning to tourism, the minister agreed with Mr Tony Berkhout (RF, Central) that the hotel industry was facing problems as a result of overseas Press coverage about the security situation in the country.

"But it has withstood more difficult times during the UDI period and the war and I cannot see that this is any worse than

what the industry has gone through before.

"The current problems are transient," the minister said, adding she hoped they would soon be over and brisk trade resumed.

Despite the bad publicity the fall in the number of international arrivals was not alarming, she said.

The Hotel Development Fund, which Mr Berkhout said was no longer in existence, was still operating, she told the House.

Loans could be given to help people who wanted to start hotels in areas where it was felt they were needed, and a lot of the money had been used to reconstruct hotels damaged during the war.

One of the factors inhibiting tourism was the high cost of air fares to Zimbabwe, she said.

Discussions with the Ministry of Transport and with international airlines had been held on this subject.

It was hoped that with more package tours it would be cheaper to bring more tourists, she said.

Regional tours to Zimbabwe, other SADCC countries, Kenya and Uganda were being worked on, and would depend on how much promotion was needed to sell Zimbabwe and other countries, as presently all the countries involved were promoting individually.

The vote was approved.

BRIEFS

WATER SEARCH--Irrigating tracts of dusty, dry Matabeleland North came a step closer yesterday when an Italian aid programme for exploratory drilling in the area was signed in Harare. The Minister of Water Resources and Development, Cde Cephas Msipa, signed a \$1,3 million grant agreement for Italian experts to locate and evaluate underground water resources in the region. Cde Msipa said he was grateful for yet another expression of support from the Italian government. The project could open up large areas for irrigated agriculture. In addition to geophysical exploration and drilling operations, Italian technicians would train Zimbabweans. "The soil in that area is good, what is lacking is water. We believe there is sufficient underground water for irrigation projects." Work, data collection and surveys would begin early next year. Zimbabwe would contribute \$230 000 towards the project. The Italian Ambassador, Dr Elio Pessa, said his government would continue to do everything in its power to contribute to Zimbabwe's success. Italian aid pledged at Zimcord was not the end of the story. "We will continue to help as much as we can." [Text] [Harare THE HERALD in English 22 Sep 82 p 3]

DROUGHT TOLL RISING--Cattle in some communal areas are dying at the rate of 30 a day, the vice-president of the Zimbabwe National Farmers' Union, Mr Japhther Malaba, said yesterday. Speaking at the ANFU congress, he said the union had approached the Ministry of Agriculture to allow stock to be moved from drought-hit areas to areas where there was better grazing--particularly in Mashonaland. This had been rejected. "The failure to accept our request has resulted in the loss of a lot of cattle in this country, and this will make restocking impossible when grazing returns to normal next year," he said. Although the farmers could manage to produce beef up to Christmas, and after, they might have problems of restocking thereafter. Beef producers were worried about continuing stock thefts, and they felt this has been caused by the reduction in the sentence of the offence from nine to four years. He urged the police, "who seem not to take it as an emergency matter when it is reported to them", to step up their efforts to bring thieves to justice. [Text] [Harare THE HERALD in English 23 Sep 82 p 1]

CSO: 5000/8

CREPEAU TAKES ACTION TO PREVENT FURTHER POLLUTION OF RHONE

Paris LE MATIN in French 17 Sep 82 p 28

[Article by Michel Ridde: "Pollution of the Rhone: Crepeau Is Angry"]

[Text] The minister of environment asked Rhone-Poulenc to strengthen its protection system. All chemical companies will be invited to take more precautions.

Three pollution incidents in a row in less than a week, over 60 tons of fish destroyed, and a threatened contamination of the ground water table: it is a long time since the Rhone saw an ecological accident of such magnitude. This explains Michel Crepeau's determination, who wants to make sure that those responsible for these pollution incidents are "punished in an exemplary manner." One of those responsible, Rhone-Poulenc, acknowledged its responsibility and was invited to strengthen its prevention system.

Last Wednesday still, some 100 firemen, 75 draftees and members of the local nautical clubs, aboard some 30 boats, were combing the banks of the Rhone downstream from Lyons, between Givors and Saint-Pierre-de-Boeuf, and heaping dead fish in large plastic bags which dump trucks would then take to a quartering enterprise in Vienne. They had to work fast to avoid a possible contamination of the ground water table.

"If we waited too long, drinking water sources might be affected sooner or later," the director of civil defense commented. For its part, the National Movement for Environment, which includes representatives of several communities affected by the disaster, decided to lodge a complaint, and the president of the National Assembly, Louis Mermaz, mayor of Vienne, announced his intention to bring a civil action suit.

Michel Crepeau reacted immediately. He stated that, together with the minister of justice, he would make sure that those responsible for these "intolerable" pollution incidents (who, in principle, incur only ridiculously small fines) would be "punished in an exemplary manner." And he invited Rhone-Poulenc's president to come and discuss with him what could be done to prevent such a disaster from occurring again.

Rhone-Poulenc did acknowledge that one ton of hydroquinone compounds, a toxic product used in the photographic industry, had been dumped into the river by its fine chemicals plant. However, this company might not be the only one involved. Hydroquinone was actually found in the dead fish, but in insufficient amounts, the experts say, to be the only cause of such a hecatomb.

Therefore, other possibilities are investigated. A chain reaction triggered when hydroquinone came into contact with other products in suspension, thus resulting in delayed pollution. Or again, the dumping of other toxic chemicals by unscrupulous manufacturers who would have taken advantage of the opportunity offered by the first pollution incident to empty their tanks.

Rhone-Poulenc's general manager met yesterday with Michel Crepeau's cabinet director who asked him to strengthen his prevention system against accidental pollution. "Rhone-Poulenc will carry out safety studies in all its plants," the Ministry of Environment announced yesterday. "And other chemical companies will be invited to take similar precautions."

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CSO: 5000/2505

NEW RF HAZARD MONITOR FOR ELECTROMAGNETIC FIELDS

Milan ALTA FREQUENZA in English Jul-Aug 82 pp 233-236

[Article by Marco Bini, Amleto Ignesti, Luigi Millanta, Nicola Rubino and Riccardo Vanni, Istituto di Ricerca Sulle Onde Elettromagnetiche del C.N.R.: "An RF Hazard Monitor"]

[Text] *Abstract.* The instrument illustrated in this paper has been designed and built to monitor RF electromagnetic fields with respect to safety standards. It is low-cost, easy to use and its indications can be immediately understood even by untrained personnel. Its particular characteristics make the instrument especially suited to monitor the fields in proximity of RF heating machines where the largest number of potentially hazardous situations for the operator are present.

INTRODUCTION

The problem of Non Ionizing Radiation hazards looks complex if faced in terms of environment pollution and if proper distinctions between various exposure conditions are not made.

A comparative analysis of the various types of RF field sources [1] allows a rational evaluation of the various exposure conditions and suggests measurement and protection methods suitable for any particular situation. Electromagnetic energy finds more and more use in civil, military, industrial and medical applications (telecommunication, broadcasting, radiolocalization, RF heating, diathermy, etc.). It has been seen that the last two present the most complex and potentially hazardous situations. Furthermore they are the source of the largest number of survey and control missions.

In this paper we describe a RF Hazard Monitor, patented by the authors [2], which has been designed and built considering the particular complexity of fields produced by RF heating machines. Of course it is also suited to monitor RF field from different sources and situations in the same frequency range. The design objectives were: low cost, ease of use, immediate relation of the reading to safety standards. All these requirements are basic to allow for widespread availability (possibly one for each potentially hazardous RF source), without the need of specialized personnel. The field level

can be thus monitored at any time, without resorting to highly qualified groups, identifying the zones where exposure should be forbidden or limited and those where unlimited exposure is permissible. Moreover the direct identification by working people of the hazardous and safe zones can eliminate all the concerns and anxiety rising from the impossibility to sense this polluting agent.

The instrument can also be a useful tool during tentative operations of grounding and shielding aimed at reducing hazardous leakage levels. These can occur, for example, after modifications or maintenance operations of the apparatuses.

A brief review of RF heating machines will help to understand the characteristics and use of the instrument. The frequencies range between 1 and 100 MHz [3],[4],[5], with a marked majority within 10 : 20 MHz for wood industry and within 30 MHz for plastic sealers. Typical powers are of the order of tens (sometimes hundreds) of kilowatt. The fields to be measured are essentially reactive near fields, and in the majority of cases are electric fields, even in the presence of coil applicators for which, according to our experience [1], the field impedance is comparable to or higher than 377 Ω . The fields decay rapidly with distance from the applicator edges, roughly as d^{-k} , with $k = 2$ to 3. The field distribution can be complicated by the presence of metallic objects; significant fields can be "conducted" across the room by leakage currents and unwanted couplings to metallic wires and pipes. These fields too decay rapidly away from the supporting structure. Fig. 1 shows the distances d from the applicator edge at which the USA and USSR safe levels are reached, for two different values of k , as function of the field intensity E_0 at $d_0 = 15$ cm.

The operation frequency and the field distribution can vary with load conditions, aging and modification of the apparatus.

In conclusion: a) the fields to be monitored are essentially confined to "hot spots"; b) the field configuration may vary in time in unpredictable manner. The consequence of this is that frequent monitoring of the field level is more significant than occasional high accuracy measurement. This can be accomplished by a low-cost, easy-to-use field monitor, which can be operated by the working personnel.

DESCRIPTION OF THE INSTRUMENT

The RF Hazard Monitor meets the stated requirements. It is essentially composed of a) a field probe; b) a comparator circuit with preset voltages (according to safety standards previously agreed upon) c) a simplified display. It is small, light, portable and battery operated (Fig. 2).

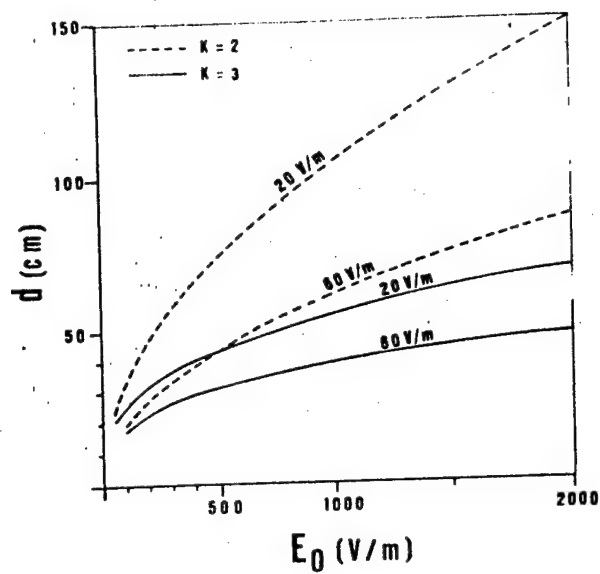


Fig. 1 - Distances at which USA (60 V/m) and USSR (20 V/m) safe levels are reached as a function of the field E_0 at 15 cm. Spatial variation $1/d^k$ of the electric field is assumed. Dashed line: $k = 2$; solid line: $k = 3$.

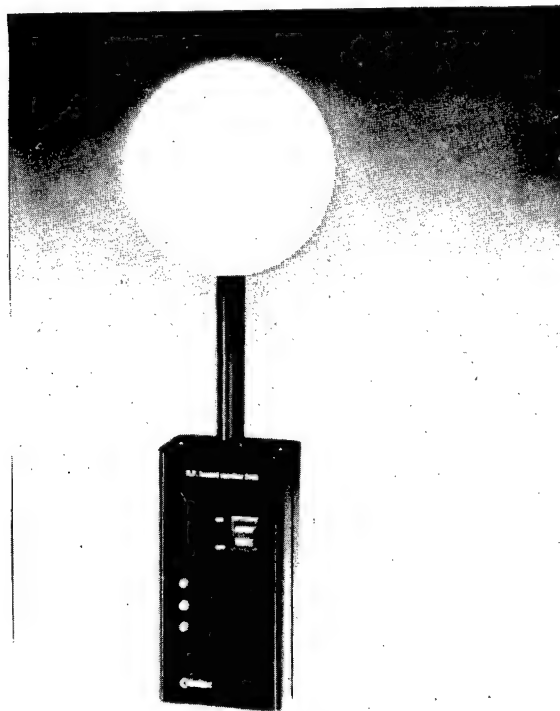


Fig. 2 - Laboratory prototype of the RF Hazard Monitor.

The field probe is isotropic. Isotropy is an essential feature for this type of instrument. Although the e.m. energy absorption depends on the field polarization relative to body position, reference to polarization is not present in any safety standard because that would introduce unnecessary and detrimental complication in the measurement of field levels.

Isotropy is achieved by connecting in series three mutually orthogonal short dipole antennas. Each dipole is directly connected to a crystal detector, a flattening capacitor and a filter (Fig. 3). The crystals act as square law detectors within the field range of interest (indication of "hazard"). Each detector thus gives a voltage proportional to the square of the electric field in the direction of the corresponding dipole, and the sum of the three is proportional to the square of the total electric field.

A flattening capacitor is connected in parallel

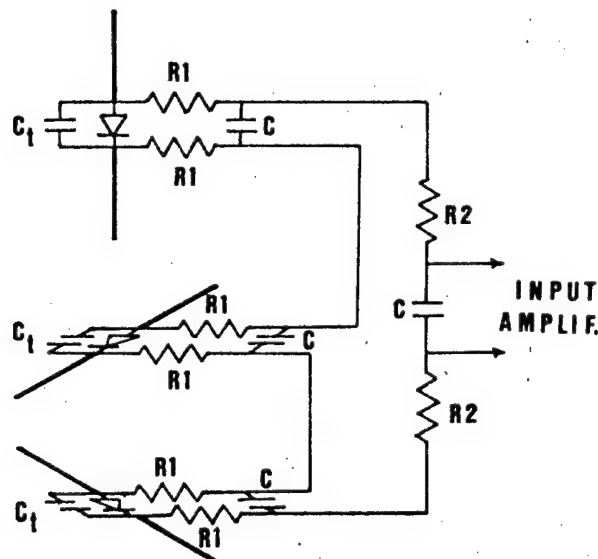


Fig. 3 - Isotropic probe schematic. C_t : flattening capacitance; R_1 , C and R_2 : filtering circuit.

to the diode, so that the antenna voltage turns out to be applied to the diode through a capacitive divider. The value C_t of this capacitance is selected so as to extend the frequency flatness down to the cut-off value $(2\pi C_t R_j)^{-1}$, where R_j is the junction resistance of the diode.

The flat response band is limited at high frequencies by the increasing of the effective length and capacitance of the antenna.

The probe design criteria were essentially those proposed by the American NBS [6], and already adopted in other field meters [7]. The dipole is so dimensioned that its effective length and capacitance remain practically constant (within $\sim 1\%$) up to 200 MHz. The total bandwidth of the probe depends also on the diode and filter parameters; it can be shown that an upper cut-off frequency exists, $f_c \approx (2\pi R_s C_j)^{-1}$ where C_j and R_s are the junction capacitance and the series resistance of the diode.

As detector, a germanium diode OA 90 was selected for its soft characteristic and low cost (0.1 \$). Taking into account the range of parameter variation of this type of diode, a minimum cut-off frequency of more than 200 MHz can be obtained. The bandwidth 1 MHz to 200 MHz is more than adequate to include the fundamental frequency and the significant harmonics produced by RF heating machines. We point out that this germanium point-contact diode, still maintaining (in the selected frequency band) the same performance of a more expensive low barrier Schottky diode, allows to obtain a low-cost field probe, which is a basic design feature of this type of instrument.

The probe is followed by a suitable filtering circuit which provides a block to RF currents induced on the instrument body by the fields and by operator touch; the soft characteristic of the diode helps to further reduce the effect of unwanted couplings. Insensitivity to such unwanted couplings is another essential feature of the instrument: this is of course a different matter than the perturbation of the field by the presence of the operator. Unwanted coupling would produce meaningless readings for any meter or monitor.

The size of the foam protective sphere (see Fig. 1) is such that signal pick up due to capacitive coupling of the antenna to nearby metallic objects is reduced to negligible levels.

The detected signal is amplified and compared (see Fig. 4) to two fixed voltages V_A and V_B : the

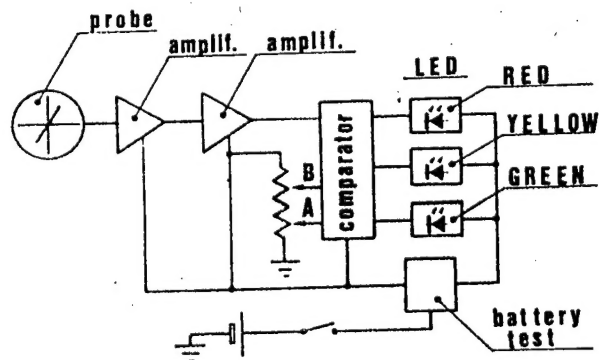


Fig. 4 - Block diagram of the RF Hazard Monitor.

output of the comparator drives the display LED's as follows. When the signal voltage V is less than V_A a green light is on; for $V_A < V < V_B$ the green light is turned off and a yellow light is turned on; for $V > V_B$ a red light is turned on and all the others are off. Only one light is on at a time. The voltages V_A and V_B are preset at the calibration stage; the probe is introduced into a calibration cell where a field value is established according to the safety standards. In the absence of Italian safety regulations we stated the following rationales for fixing the reference levels.

It is universally accepted that a thermal hazard exist. Exposure to e.m. field at "thermal" levels should be forbidden. The new USA safety standards limit the permissible absorption to a fraction of the Basal Metabolic Rate, taking into account the resonant absorption in the frequency range where heating machines usually operate. We selected the level of 150 V/m for the switching between yellow and red light (i.e. V_B reference level). This corresponds to a value where at least 1 minute of exposure is allowed according to the recent USA recommendations [8].

On the other hand the most restrictive standards (USSR) are fixed at a fraction of field level at which any effect couldn't be observed. Exposure to fields within that limit appears to be completely safe and unlimited exposure is permissible. Confining our attention to the HF (3 MHz to 30 MHz) we adopt the level of 20 V/m for the switching between green and yellow light. (i.e. V_A reference level). Between the red (forbidden) and the green (safe) zone, the field levels are such that a prolonged exposure should be avoided, but sporadic and brief (less than one minute) exposure do not cause real harm or serious concern. Of course, if different safety regulations were assumed, it would be sufficient to reset the V_A and V_B levels.

The response of the instrument is frequency independent in a band (1 MHz to 200 MHz) where safety standards are not. For example the Soviet Standards have different levels in the frequency ranges 3 MHz to 30 MHz (20 V/m); 30 MHz to 50 MHz (10 V/m); 50 MHz to 300 MHz (5 V/m). Although the majority of heating machines works in the band of 3 to 30 MHz, some harmonic generation can occur. We can assume that in practice they decrease as $1/n^2$ or faster, where n is the order of the harmonic. The square-law detection will then take their contribution into safe account. For instance a 27 MHz plastic sewing machine, producing at a certain point a field of 19,5 V/m, could generate a second harmonic field of 4,9 V/m. Both fields are just below the USSR safety levels, while the monitor will cautiously light the yellow LED.

A ± 3 dB (but usually better) accuracy is easily obtained in the RF Hazard Monitor, which is the typical accuracy offered by higher class, commercial field meters. This accuracy includes frequency response, calibration errors, isotropy errors and temperature variations.

In order to obtain maximum simplicity in the use, only the ON/OFF switch is provided.

The instrument is battery operated. A battery test circuit is provided (Fig.4): with the power switch ON, one of the LED's must be on. This shows the operator that the battery is charged.

The laboratory prototype weighs 0,5 kg (including Ni-Cd rechargeable batteries), is 33 cm from the top of the sphere to the bottom of the cabinet. This is the maximum dimension. The cabinet is 15 cm x 7 cm x 4 cm. No special effort was spent towards miniaturization or weight reduction.

CONCLUSION

The RF Hazard Monitor is a practical answer to the problem of health protection of the personnel operating radiofrequency heating machines. It can also be useful tool in all the problems where the RF fields have to be tested in relation to a safety standard. Its main technical characteristics are: isotropic response, insensitivity to unwanted couplings, simplified read-out correlated to pre-settable safety standards.

It has been designed for low cost, so that widespread availability is possible. Its ease of use does not require any specialized personnel.

This instrument will permit a frequent and inexpensive monitoring of each heating machine, avoiding human exposure to hazardous fields but also avoiding undue concern where the field levels are within accepted safety standards.

REFERENCES

- 1 M.Bini, A.Ignesti, L.Millanta, N.Rubino, R.Vanni: *A comparative analysis of the various polluting RF sources*, "Alta Frequenza" vol. XLIX, 1980, p.76.
- 2 M.Bini, A.Ignesti, L.Millanta, N.Rubino, R.Vanni: *Hazard Monitor for RF electric and magnetic fields*, Italian Patent 9397 A/80, 1980.
- 3 R.F.Cleveland, J.K.Kielman, Z.R.Glase: *Biological effects of radiofrequency and microwave radiation and their relevance to occupational safety and health standards in the United States*, 1979 Microwave Power Symposium Monaco, 1979.
- 4 M.A.Stuchly, M.M.Repacholi, D.Lecuyer, R.Mann: *Radiation survey of dielectric (RF) heaters in Canada*, J.Microwave Power, vol. 15, 1980, p.113.

- 5 M.Bini, A.Ignesti, L.Millanta, N.Rubino, R.Vanni: *Hazards of electric fields generated by dielectric heating machines: exposure levels measurements*, Proceedings of LXXXI AEI Annual Convention, Trieste 1980, p.I-43 (in Italian).
- 6 F.M.Greene: *Development of electric and magnetic field probes*, NBS TN-658, Jan. 1975.
- 7 L.Bolla, G.Gerbi: *An electric and magnetic field meter*, Alta Frequenza vol. XLIX (1980), p. 150.
- 8 *Environmental health criteria 16: radiofrequency and microwaves*, world Health Organization, Geneva 1981.

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